

INVESTIGATION REPORT (In lieu of form 9230-24, March 1985)

M/045/002
2/21/97

Unauthorized Use Number:

Unauthorized Use Reported: approx 1992

Unauthorized Use Investigated: Since above date

Date of this report:

1. UNAUTHORIZED USER

Name: Reilly Industries
Address: Box 580, Wendover Utah, 84083
Phone Number: 801-

2. LOCATION AND AREA OF UNAUTHORIZED USE.

T2S R19W, SL Meridian
Sec 5 NWSW
Sec 8 E2NW
Sec 17 NWSW
Sec 20 NWSW, 280 acres more or less

3. DESCRIBE UNAUTHORIZED USE:

The unauthorized use is, the extraction of potassium and related compounds in a brine solution through a collection ditch system without a mineral lease from 1965 to 1993.

4. DAMAGES:

Damages Claimed	
<u>ITEM</u>	<u>VALUES</u>
Rental	\$7,070.00
Royalty	\$3,560.59
Interest @ 4%	\$3,274.00
Bonus Bid @ \$1.1/acre	\$308.00
Administrative (est)	\$4,000.00
Grand Total	\$18,212.59

5. SKETCH OF AREA:

See Files

6. VIOLATION:

43 CFR 9239.5

7. SUMMARY OF UNAUTHORIZED USE:

The ditches that are being discussed as part of the fringe acreage lease application have been in trespass. Documentation has shown that Reilly/Kaiser has shown the trespass on the maps since 1965. In 1963 the maps do not show the trespass. BLM was not aware of the trespass until the Air Force contacted BLM about a right-of-way that Reilly was reapplying for. Reilly had originally applied for the right-of-way in 1976. BLM investigated and found that the ditches in question were collecting brine off the private land and onto the federal lands included in the Wendover Bombing range. In talking with the staff, it was the intention of BLM to process the fringe acreage lease application as part of the trespass.

The applicant finding itself in an encroachment situation applied to the United States Air Force (the land manager) for an Easement for Right-of-Way. This allowed for the construction, operation and maintenance of collection ditches at Wendover Air Force Range, Utah. The applicant, was issued the Right-of-Way including but not limited to the following terms

4. The grantee shall supervise the said line and cause it to be inspected at reasonable intervals, and shall immediately repair any leaks therein as a result of such inspection . . .

14. That it is understood that this instrument is effective only insofar as the rights of the United States in the said property are concerned; and that the grantee shall obtain such permission as may be necessary on account of any other existing rights.

8. NAMES AND ADDRESSES OF PARTIES INVOLVED:

Glenn Wadsworth- Reilly Industries
Stan Perkes- Utah State Office of the BLM
Lonnie Johnson- Hill AFB

9. RECORD OF FACTS:

Reilly applies to the Air Force for a Licence to use lands 1976 (Granted)_
Reilly applies to the Air Force for a Right-of-way 1986 (Granted)
Reilly applies to the Air Force for a Right-of-way 1991 (Denied) BLM Notified
BLM Inspected Trespass - 1992
Reilly Applies for Fringe Acreage Lease 6 Feb. 1992
BLM sends a letter to Reilly stating possible trespass 18 Feb. 1994
Reilly Responds to a letter 8 Jun. 1994
Maps by company show trespass as early as 22 March 1965
USGS Orthophoto quads show ditches in Trespass (1973)

10. ATTORNEYS NAME AND ADDRESS:

Unauthorized User- John Kirkham

11. RECOMMENDATIONS:

Issue Notice of Trespass to the Unauthorized User. The collection ditches are collecting brines that are located in the subsurface which contains potassium and related minerals. The collection ditches are in the Wendover bombing range which was withdrawn from public use on January 28, 1941. Public law 85-337 (dated February 28, 1958) states that "all DoD lands . . . withdrawn or reserved shall be deemed to be subject to the condition that all minerals, including oil and gas, in the lands so withdrawn or reserved are under the jurisdiction of the Secretary of the Interior and there shall be no disposition of, or exploration for, a mineral in such lands except under the applicable public land, mining and mineral leasing laws:...." This collection of minerals is in violation of 43 CFR 9239.5 because it is being done without a mineral lease under the Mineral Leasing Act of 1920 as amended.

The figure of 4% was chosen as interest on this issue because it was determined that a pass book savings account at this particular time could be obtained with this interest. This attempts to bring the dollars forward to 1996 dollars. The bonus bid was based upon the smallest amount Standard Magneisum paid for the the Federal leases on the East side of this property.

43 CFR 9239.5-3 (a)(1) states, "For innocent trespass, payment must be made for the value of the coal (**minerals**) in place before severance. United States v. Homestake Mining Company (117 Fed. 481)." (Emphasis added)

12. ENCLOSURES:

See Files

February 12, 1997

Certified Mail - Return Receipt Requested

D E C I S I O N

Mr. Glenn Wadsworth
Reilly Wendover
P.O. Box 580
Wendover, Utah 84083-0082

Notice of Trespass

Dear Mr. Wadsworth:

We are in receipt of your letter dated June 8, 1994. Careful consideration has been given to the information you have submitted. We have accepted this information as complete and have analyzed it in conjunction with other data pertaining to this trespass. Our decision is based on all the available information and it is our opinion that you are in violation of the Mineral Leasing Act of 1920 as ammended and 43 CFR 9239.5.

The above violation occure in Tooele County of the State of Utah
T2S R19W SL Base Meridian
Sec 5, NWSW
Sec 8, E2NW
Sec 17, NWSW
Sec 20, NWSW 280 acres more or less

It is our opinion thay you have committed an act of innocent trespass by removing mineral laden brines from a ditch extraction system in the above location(s). You have processed the brines and extracted the minerals for sale at market. Based on maps submitted by your company dated as early as 22 March 1965 the ditches are shown in trespass. Again in 1973, the USGS Orthophoto maps also show the ditches in trespass. The fact that

your company did apply for and receive a Right-of-way from the Department of Defense demonstrates your willingness to correct the trespass and therefore is our basis for a innocent trespass.

To resolve this trespass, we would like a meeting in March 1997 to discuss the amount of the trespass and the time period

If you have any questions, please contact Mr. Stan Perkes, Utah State Office, Bureau of Land Management, (801) 539-4036.

Sincerely,

Douglas M. Koza
Deputy State Director,
Natural Resources

enclosure

cc: Salt Lake District Manager

bbc: File - Reilly
Solid Chron

Sperkes:sp:03/16/94

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Number
State
District
Date

TRESPASS NOTICE

Utah State Office
324 South State Street, Suite 300
P.O. Box 45155
Salt Lake City, Utah, 84145-0155

Reilly Wendover
P.O. Box 580
Wendover, Utah 84083-0082

YOU ARE HEREBY NOTIFIED That the Bureau of Land Management has made an investigation and evidence tends to show that your are in trespass. We allege that you,

XX are violating

 may have violated

 have violated

the law(s) specified below and the regulation(s) approved by the Secretary of the Interior pursuant to the authority vested in him by said law. Therefore, it is our opinion that you:

Have committed the following act(s):

1. Severed Federally owned potassium and related mineral brines owned by the United States with out a mineral lease on lands withdrawn to the Department of Defense.
2. Processed the related mineral brines and sold the products (Potassium Chloride, Sylvinite, Magneisum Chloride and Sodium Chloride) with out a mineral lease.

Are in violation of the following law(s):

1. Mineral Leasing Act of 1920 as ammended
2. Public Law 85-337 (February 28, 1958)
3. Federal Land Policy and Management Act of 1976, as ammended

And are in violation of the following regulation(s):

43 CFR 9239.5

On the following-described land: Tooele County, State of Utah

T2S R19W SL Base Meridian

Sec5 NWSW

Sec 8 E2NW

Sec 17 NWSW

Sec 20 NWSW 280 acres more or less

____ Violations, if continuing, *must* stop immediately.

____ You are allowed ____ days from receipt of this notice to cease the alleged trespass operation.

____ If you have evidence or information which tends to show you are not a trespasser as we have alleged, you are allowed ____ days from receipt of this notice to present such evidence or information at the Bureau of Land Management office shown on the front of this form.

If allegations we have made are correct, you must permanently cease and desist from the violations charged, if you have not already done so. You are allowed ____ days from receipt of this notice to appear at the Bureau of Land Management office shown on the front of this form to effect a settlement for trespass damages.

Failure to comply with this notice will result in further action to protect the interests of the United States. You are further advised that the authorized officer may refuse to sell timber or materials, or issue a permit, lease, or license to a trespasser who has failed to make satisfactory arrangements to satisfy his liability to the United States, as provided in 43 CFR 9239.0-9, 9239.3-2, and 4113.1.

Signed

Title

CERTIFICATE OF SERVICE

I,

CERTIFY That on the ____ day of _____, 19____, I served written notice

on _____,

of _____,

the party's address of record, by a true copy of the within notice by _____ personal service _____ certified mail. If by certified mail, the envelope containing said notice bears registry stamp number

And return receipt marked "for addressee only" has been requested.

Signature of server

Title



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Utah State Office
P.O. Box 45155
Salt Lake City, UT 84145-0155

IN REPLY REFER TO
3536
(UT-920)

CERTIFIED MAIL--Return Receipt Requested

Mr. Glenn Wadsworth
Reilly Wendover
P. O. Box 580
Wendover, Utah 84083-0082

Re: Potassium Fringe Acreage
Lease Application UTU-69383,
dated February 3, 1992

Dear Mr. Wadsworth:

We are writing in response to your application dated February 3, 1992, addressing potassium fringe acreage lease application UTU-69383.

The subject application does not meet with our regulations and, therefore; we request that you provide us with the following:

43 CFR 3501.1-1(a) states, "... Generally, a quarter-quarter section or a lot is the smallest legal subdivision for which an application may be made." Considering this requirement the metes and bounds description in your application cannot be processed as submitted. At a minimum the following land description will be required:

T. 2 S., R. 19 W., SLM, Utah
Sec. 5, NESE, NWSW;
Sec. 8, E2W2;
Sec. 17, E2W2;
Sec. 20, E2W2.
Containing 560.00 Acres more or less

The above description satisfies the requirement that a lease be less than 2560 acres. Additionally, you would be in conformance with the requirement that the ditches are not within 500 feet of the boundary line of the lands contained in the approve mine plan as stated in 43 CFR 3594.5(c).

Bonus Bid: The bonus bid has been determined at \$3.00 per acre, which totals \$1680.00.

Rental: You have presently paid the \$25.00 filing fee and an advance rental of \$20.00. Based on the additional acreage rental in the amount of \$120.00 will be required.

If you have any questions, please contact Mr. Stan Perkes, Utah State Office, (801) 539-4036.

Sincerely,

Douglas M. Koza
Deputy State Director
Natural Resources

Enclosure
Map

cc: Salt Lake District Manager

bcc: File - Reilly
Solid Chron

SPerkes:sp (02/12/97)

ENGINEER FOOTPRINT AIR FINDER

PONDS

EVAPORATOR

Brine Well
4216

E2W2

160

E2

E2SW

80

E2NW

80

ALKALI

OF MUD

TRAIL

Stipulations to Fringe Acreage Lease
Reilly Wendover Operations.

Surface Occupancy:

The Lessee will have no further surface occupancy of the lands listed than already exist as of the date of the issuance of this lease except for those as listed below. This restriction includes casual use under Section 6 of this lease.

Paleontological or Historical Sites:

In the event a paleontological (fossil) or Historical sites are found during the lease of said lands, the lessee will stop all operation of the said lands and shall notify the Surface Managing Agency. The lessee will pay for the study of the sites to document them to the Surface Managing Agency if they are determined to be of significance by the proper authorities.

BLM has comments on the following Air Force Stipulations;

Damages:

1. Without limiting any of the foregoing provisions, Lessee agrees that during the performance of this lease and in consideration of use of Air Force property described herein and for the purpose as set forth herein, the Lessee agrees to fully indemnify and hold harmless the United States Air Force and the United States of America, their officers, employees, agents, volunteers, and other representatives (herein referred to as Air Force) for any injury or damage to environmental quality, including any court costs and attorney's fees, by reason of Grantees construction, operation, use maintenance of said property as described herein (hereinafter referred to as Grantees operations). Specifically, Lessee agrees to waive, release and agree to indemnify and hold harmless the Air Force from all claims, suits, or liabilities arising out of Grantee's operations and including, but not limited to, remedial actions under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and any amendments thereto to include the Superfund Amendments Reauthorization Act of 1986 (SARA); spill releases, discharges, including emitting, leaking, spilling or other release to the environment of any solid, liquid or gaseous matter in violation of any statute, ordinance, rule, regulation, standard, permit, or order relating to environmental quality; hazardous waste transportation, disposal, storage or any other action dealing with hazardous waste including, but not limited to, corrective action involving the Federal Water Pollution Control Act, Safe Drinking Water Act, Toxic Substances Control Act, Clean Air Act, and other statute, ordinance, rule, license, order, etc., involving environmental quality; any action required involving radiation, including the Atomic Energy Act and any other statute, ordinance, rule, license or order involving the regulation of radiation.

Comments to Stipulation 1. None

Ditch installation, Operation and Maintenance:

2. The installation and/or operation and maintenance of ***the approved*** said ditches shall be accomplished without cost or expense to the United States under the general supervision and subject to the approval of the officer of the Air Force having immediate jurisdiction over the property, hereinafter designated as "said officer" and in such a manner as not to endanger personnel or property of the United States on the said United States land or obstruct travel on any road thereon.

Comments to Stipulation 2. BLM would like the above changes made.

Additional Regulations:

3. The use and occupation of the lease incident to the exercise of the privileges hereby granted shall be subject to such rules and regulations as the said officer of the ***Air Force*** may from time to time prescribe.

***Comments to Air Force Stipulation 3.
BLM would like the above changes made.***

Repair of Damages to the ditches

4. The Lessee shall supervise the ~~said line~~ ***approved ditches*** and cause it ***them*** to be inspected at reasonable intervals, and shall immediately repair any leaks found therein as a result of such inspection, or when requested by said officer to repair any defects. Upon completion of the installation of said line and the making of any repairs thereto, the premises shall be restored immediately by the Lessee, at the Lessee's own expense, to the same condition as that in which they existed prior to the commencement of such work, to the satisfaction of the ***Authorized Officer of the BLM in consultation of*** said officer.

Comments to Air Force Stipulation 4.

We would like to make the following change:

The Lessee shall supervise ~~maintain~~ the ***ditches in the approved mining plan*** said line and cause it to be inspected at reasonable intervals, and shall immediately repair any ***breaches leaks*** found therein as a result of such inspection, or when requested by said officer to repair any defects. Upon completion of the installation of ***the ditches*** ~~said line~~ and the making of any repairs thereto, the premises shall be restored immediately by the Lessee, at the Lessee's own expense, to the same condition as that in which they existed prior to the commencement of such work, to the satisfaction of the ***said Authorized officer of the BLM, in consultation with the said officer of the Air Force.***

Property Damages:

5. Any property of the United States damaged or destroyed by the Lessee incident to the use and occupation of the said premises, shall be promptly repaired or replaced by the Lessee to the satisfaction of the **Authorized Officer of the BLM in consultation with the said officer of the Air Force**, or in lieu of such repair or replacement the Lessee shall, if so required by the **Authorized Officer in consultation with the said officer of the Air Force**, pay to the United States money in an amount sufficient to compensate for the loss sustained by the United States by reason of damages to or destruction of Air Force Property.

BLM comments to Air Force Stipulation #5.

BLM would like the above change made.

Easements:

6. The United States reserves to itself the right to construct, use, and maintain across, over, and/or under the right of way hereby granted, electric transmission, telephone, telegraph, water, gas, gasoline, oil, and sewer lines, and other facilities in such manner as not to create any unreasonable interference with the use of the right of way herein granted.

BLM Comments to Air Force Stipulation 6. DELETE STIPULATION

Section 29 of the Mineral Leasing Act states: ". . . That the said Secretary (Interior), during the life of the lease, is authorized to issue such permits for easements herein provided to be reserved."

6 b. Please add that the Air Force can revoke the Lease at will and a

BLM Comments to Air Force Stipulation 6b.

Section 31 of the Mineral Leasing Act states: ". . . Any lease issued under the provisions of this Act may be forfeited and canceled by an appropriate proceeding in the United States district court for the district in which the property. . . fails to comply with any of the provisions of this Act. . . ."

6b. clause that states the Air Force security will not be breached.

BLM Comments to Air Force Stipulation 6b.

Security Requirements:

The lessor shall observe all requirements and regulations concerning Department of Defense and Air Force security. At no times shall the Lessee access the property without proper authorization of the said officer of the Air Force.

6c. Section 8^c states that Reilly can transfer the lease. Request this sentence be deleted and no transfers be allowed.

BLM Comments to Air Force Stipulation 6c.

Our regulations state in 43 CFR 3506.1 "Any prospecting permit or lease may be assigned or subleased in whole or in part to any person, association, or corporation qualified to hold such lease or permit."

Damages

6d. In consideration of the Air Force granting to Reilly **Lessor** or its agents access to Air Force property, Reilly **the Lessor** agrees to fully indemnify and hold harmless the United States Air Force and the United States of America and their agents, officers, and employees, including costs and attorney fees arising from any and all liability or claims for injury or damage to this property or any of its contractors, subcontractors, agents, consultants, employees, volunteers, contract bidders or any other entity or individual, which injury or damages arise by reason of the granting or access to or use of the property for the purpose described in this agreement or presence on the property; specifically Reilly **the Lessor** agrees to indemnify and hold harmless the United States and its officers, agents, or employees, from any and all claims of any nature, but expressly including any claim arising from the negligence or breach of warranty by the United States or any of its officers, agents, or employees, including, but not limited to, negligent representation of any material fact or breach of any duty to warn, to inspect or to fully disclose, or from any cause of action sounding in "product liability", "strict liability", or from any cause of action arising out of ultrahazardous activities, or any other cause of action under the law. The undersigned further agrees and covenants not to sue the Air Force, the United States, or any of their officers, employees or agents, in connection with any such claim or suit.

BLM comments to Air Force Stipulation 6d.

We would like the above changes made.

Reclamation:

6e. Upon the expiration, **relinquishment** or termination of this lease, **or** and at the option of the Air Force, Lessee, without expense to the United States; and within such time as the Commander, Hill, Air Force Base, Utah or his designated representative (Officer), may indicate, shall remove any improvements, **including but not limited to any ditches, access roads, pits or other excavations**, placed on the property by Lessee and restore the premises authorized to be used **so far as reasonably possible** to its original condition or to a condition satisfactory to the Officer **Lessor**. In the event that Lessee fails, neglects, or refuses to remove the improvements and so restore the premises, the Air Force shall have the option either to take the improvements over as property of the Air Force, without paying compensation, or to remove any improvements and perform the restoration work at the expense of the Lessee, and in no event shall Lessee have a claim for damages against the Air Force or its officers, or agents, on account of taking over such improvements or on account of its removal. **A reclamation plan shall be submitted to the Authorized Officer of the BLM in accordance with 43 CFR 3592**

(c)(9). All reclamation activities must be approved in writing by the Air Force and the BLM.

Reilly Wendover Summary Federal Bond Coverage, (Reclamation Only):

N/045/002
2/21/97

	Reilly	BLM	BLM w/o Trespass
Collection Ditch Length	73,200 ft.	79,743 ft	74077
Baffle Length	55,200 ft	58,010 ft	58,010 ft
Dike Length	54,900	47,223 ft	47,223 ft
Col Ditch Area	270 sq ft	240 sq ft	240 sq ft
Baffle Area	72 sq ft	53 sq ft	53 sq ft
Dike Area	300 sq ft	296 sq ft	296 sq ft
Total Yds.	1,444,200	1,340,401	1,290,037
Production Rate yds/hr	150	218.7	218.7
Time Hrs/month	176	173	173
Time Est. (Months)	54.7	35.4	34.1
Equipment Cost \$/month	\$6500/mo	\$9121/mo	\$9121/mo
Operator Cost \$/month	\$3600/mo	\$4455/mo	\$4455/mo
Travel Cost \$/month	\$0/mo	\$2027/mo	\$2027/mo
Operational Cost \$/month	\$0/mo	\$1269/mo	\$1269/mo
Total Cost per Month	\$10,100	\$16,872	\$16,872
Pumps	\$74	\$113	\$117
Total Cost	\$10,174	\$16,985	\$16,989
Contingency	1.80%	2.00%	2.00%
Tot Cost w/Cont	\$566,607	\$613,767	\$590,858
Overhead & Profit	0.00%	15.00%	15.00%
Total Cost w/ OH&P	\$566,607	\$705,832	\$679,487
Administrative OH	0.00%	18.00%	18.00%
Total Cost w/ Ad OH	\$566,607	\$832,881	\$801,795

The Costs for Reilly (\$566,600) and BLM column are based upon the trespass and represent a direct comparison. The column without the Trespass equates to a Reilly value of \$535,600.

Reilly Reclamation Bond Calculation

Calculation Sheet CUBIC YDS OF SOIL

	Length	Area	Tot Yds
Collection Federal	74077	240	658,462
collection State	4800	240	42,667
Collection Encr	5666	240	50,364
Collection Total	84543	240	751,493

Dike Federal	47223	296	517,704
Dike State	13700	296	150,193
Dike Total	60923	296	667,897

Baffles Federal	58010	53	113,871
Baffles State	4500	53	8,833
Baffles Total	62510	53	122,705

PSI	Lbs	Area (sq in)	PSI
D7H Series II LGP	59800	9029	6.623103
D8LGP	81025	9576	8.461257 Custom model

PRODUCTION RATE	LCY/HR	Operator	Material	Job Eff 45 min	Density	Pro Rate yds/hour	W/o Trespass	W Trespass
Yds/HR "SU Blade"	600	0.75	0.8	0.75	0.81	218.7		

RECLAMATION TIME	Yds/hr	Hrs/Month	Yds/Month	Total Yds	Mths w/o Encroachment		
Yds/Month	219	173	37,835	1,290,038	34.09632		34.10 35.42747

OPERATING COSTS	\$/gal	Gal/Hr	Total \$/hr				
fuel	\$1.30		7	\$9.10 from chart 17-12			
Oil & Lube				0.68 from chart 17-24			
	\$/hour	Hrs/month	Minwrk/hr	Min/hr	\$/month		
Total	\$9.78	173	45	60	\$1,268.96	\$1,269	1268.955

EQUIPMENT RENTAL	\$/Mo	Discount	Total				
	\$8,900.00	1	\$8,900.00				
Mobilization	\$/Trip	Trips/year	\$/Year	Mo/year	\$/Month		
	640	2	1280	6	\$213.33		
Insurance	\$/Month						
	\$8.06						
Total	\$9,121.39					\$9,121	\$9,121

OPERATOR COSTS	\$/Hour	hrs/Month	\$/Month				
Operator wages	\$25.75	173	\$4,454.75			\$4,455	4454.75

TRAVEL COSTS	\$/day	miles/week	\$/Week	Weeks/mo	\$/month		
Operators Travel	\$0.30	240	\$72.00	4.3	\$309.60	\$2,027	2026.62
Supervisors travel	\$0.30	120	\$36.00	4.3	\$154.80		
	\$/day	days/mo					
Operators Perdiem	\$66.00	21.67			\$1,430.22		
Super Perdiem	\$66.00	2			\$132.00		
Total					\$2,026.62	\$16,872	\$16,872

Pumps		\$117	\$113
Total per month		\$16,989	\$16,985
Total Cost Months times Cost per month		\$579,264	\$601,722
Contingency @ 2%		\$590,849	\$613,757
OH & P @ 15%		\$679,476	\$705,820
Administrative @ 18%		\$801,782	\$832,868

Reilly Reclamation Bond Calculation

Calculation Sheet CUBIC YDS OF SOIL

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Collection Encl	5666	240	50,364
Collection Total	84543	240	751,493

Dike Federal	47223	296	517,704
Dike State	13700	296	150,193
Dike Total	60923	296	667,897

Baffles Federal	58010	53	113,871
Baffles State	4500	53	8,833
Baffles Total	62510	53	122,705

PSI	Lbs	Area (sq in)	PSI
D7H Series II LGP	59800	9029	6.623103
D8LGP	81025	9576	8.461257 Custom model

PRODUCTION RATE	LCY/HR	Operator	Material	Job Eff 45 min	Density	Pro Rate yds/hour	W/o Trespass	W Trespass
Yds/HR "SU Blade"	600	0.75	0.8	0.75	0.81	218.7		

RECLAMATION TIME	Yds/hr	Hrs/Month	Yds/Month	Total Yds	Mths w/o Encroachment			
Yds/Month	219	173	37,835	1,290,038	34.09632		34.10	35.42747

OPERATING COSTS	\$/gal	Gal/Hr	Total \$/hr					
fuel	\$1.30	7	\$9.10 from chart 17-12					
Oil & Lube			0.68 from chart 17-24					
	\$/hour	Hrs/month	Minwrk/hr	Min/hr	\$/month			
Total	\$9.78	173	45	60	\$1,268.96		\$1,269	1268.955

EQUIPMENT RENTAL	\$/Mo	Discount	Total					
	\$8,900.00	1	\$8,900.00					
Mobilization	\$/Trip	Trips/year	\$/Year	Mo/year	\$/Month			
	640	2	1280	6	\$213.33			
Insurance	\$/Month							
	\$8.06							
Total	\$9,121.39						\$9,121	\$9,121

OPERATOR COSTS	\$/Hour	hrs/Month	\$/Month					
Operator wages	\$25.75	173	\$4,454.75				\$4,455	4454.75

TRAVEL COSTS	\$/day	miles/week	\$/Week	Weeks/mo	\$/month			
Operators Travel	\$0.30	240	\$72.00	4.3	\$309.60		\$2,027	2026.62
Supervisors travel	\$0.30	120	\$36.00	4.3	\$154.80			
	\$/day	days/mo						
Operators Perdiem	\$66.00	21.67			\$1,430.22			
Super Perdiem	\$66.00	2			\$132.00			
Total					\$2,026.62		\$16,872	\$16,872

Pumps							\$117	\$113
Total per month							\$16,989	\$16,985
Total Cost Months times Cost per month							\$579,264	\$601,722
Contingency @ 2%							\$590,849	\$613,757
OH & P @ 15%							\$679,476	\$705,820
Administrative @ 18%							\$801,782	\$832,868
Escalation		1.025	1.025	1.025	1.025	1.025		\$942,314

Reilly Wendover Reclamation Bonding Requirements

SUMMARY:

It has been determined by the State Office Minerals Staff that it is necessary for a bond to be placed with the BLM by Reilly Industries. This bond is to insure reclamation of disturbed areas within their Federal mineral leases at their potash operation near Wendover Utah. Section 5 of the lease states "...to the extent deemed necessary by the lessor to fill any pits, ditches and other excavations..." The reclamation requirements are that ditches will be backfilled, baffle walls will be pushed into adjacent borrows and dikes be reclaimed. This only includes lands that are currently under lease. This does account for lands that are currently applied for under a fringe acreage lease. A cost estimate for reclamation has been performed by the Minerals Staff and resulted in the following:

Equipment: D7H LGP Dozer

Production Rate: 219 cubic yards per hr

Time for Reclamation: 35.4 months

Recommended Federal Bond Amount with encroachment: \$833,000

INTRODUCTION:

The Reilly Potash operation is located at the western end of Tooele County, Utah, approximately 4 miles east of the community of Wendover Utah. This area is extremely flat with a nominal elevation of 4,212 feet above sea level. The production of market grade potash at this operation consists of four basic steps:

1. Brine collection
2. Concentration of brines through evaporation
3. Precipitation and collection of potash
4. Flotation concentration and drying of the potash ore.

In order to perform these basic steps many miles of ditch were excavated to transport the brine to primary ponds which include baffle walls designed to concentrate brines. This report will evaluate the costs of backfilling the ditches and excavating baffle walls located on federal and state mineral leases.

EARTHWORK REQUIRED:

The total length of ditches and baffles were approximated from the map at Appendix 1 and verified with the map dated 1994 submitted from the company to BLM. The resulting lengths are as listed in Table 1.

TABLE 1.

Total Length of Ditches and Baffles (feet)				
Type	Collection	Dike	Baffles	Total
Federal	74,077	47,223	58,010	179,310
State	4,800	13,700	4,500	23,000
Total	78,877	60,923	62,510	202,310
Encroachment	5,666	0	0	5,666
Grand Total	84,543	60,923	62,510	207,976

The lengths of each ditch was then multiplied by their average cross sectional area. These areas for the collection ditch and the baffles were calculated using the diagrams submitted by Reilly Industries as attachments to the Production Plan for Pond System V and field verified. The area for the primary pond was measured on 19 June 1995. The diagrams are in Appendix 2.

1. Collection Ditch = 240 sq. ft.
2. Seal Ditch (Dike) = 296 sq. ft.
3. Baffle walls = 53 sq. ft.

Once this calculation is carried out, the resulting figure is the cubic feet of soil that must be relocated. This figure was then converted into cubic yards using the following equation:

$$\text{yd}^3 = \text{ft}^3/27$$

where:

yd³ = Cubic Yards of soil

ft³ = Cubic feet of soil

The cubic yardage of soil to be moved is summarized in Table 2.

TABLE 2.

Cubic Yardage of Soil to be Moved				
Type	Collection	Dike	Baffles	Total
Federal	658,462	517,704	113,871	1,290,037
State	42,667	150,193	8,833	201,693
Total	701,129	667,897	122,704	1,491,730
Encroachment	50,364	0	0	50,364
Grand Total	751,493	667,897	122,704	1,542,094

EQUIPMENT SELECTION:

Equipment selection is limited by the load bearing capacity of the soil surface. In a study performed by the Utah State Department of Highway in cooperation with the Bureau of Public Roads on the immediate surroundings, unconfined compression tests determined the load bearing capacity of the soil to be 10 psi. The reference page from the report can be viewed in Appendix 3. Reilly Industries equipment of choice to perform the excavation work is a dozer. Referencing to Caterpillar's Performance Handbook (25th Anniversary Edition), it was determined that the D7H-LGP is the highest production dozer that could be used. This dozer has an applied stress of less than 7 psi on the soil, which is a reasonable 3 psi less than the suggested limit. The D9N, D10N and the D11N dozers all apply loads of 14.3 psi or higher which eliminates them from consideration. The D8 dozer applies a load on completely level ground of less than 10 psi by this would be increased above the 10 psi by dozing on a slight grade. The loads applied to the soil by the dozers were calculated by using the specifications section of the Performance Handbook. In this section the overall weight of the dozer and the ground contact area of the dozer shoe were given and can be viewed in Appendix 4. Using these two parameters, the load per square inch applied by the dozer on the soil was calculated by using the relationship:

$$\sigma_d = W_d/A_d$$

where:

σ_d = Stress applied by the dozer on the soil (psi)

W_d = Weight of the dozer (lb)

A_d = Dozer shoe ground contact area (sq. in.)

Production Rate of the Equipment:

The production rate of the D7H-LGP was calculated using the Caterpillar Performance Handbook, Bulldozer Section, pages 1-59 and 1-61. Page 1-59 is a graph of the production vs. dozing distance and page 1-61 is a step by step explanation on how to use the graph to estimate the actual production of the dozer, taking into account site specific factors. Both of these pages can be inspected in Appendix 5.

The following is a direct accounting for each correction factor used in the production rate calculation.

The average push is assumed to be 75 feet based on 50 foot push from the inby edge of the berm of the ditch and assuming the berm being 25 in width.

The uncorrected Hourly Production (P_u) (graph in Appendix 5) = 600 LCY/Hr

Correction Factors:

1. Operator (O): Assuming that the operator will be average, the suggested correction factor is 0.75

2. Material (M): The silty sandy material present is generally dry and can flow when wet. The suggested correction factor is 0.8.

3. Job Efficiency (E_j): The operator will be in charge of general maintenance of the dozer (lube, oil, filter). Taking this factor into account, along with startup time, breaks and miscellaneous delays, an efficiency of 45 min/hr is estimated. The suggested correction factor is 0.75

4. Material density (D_m): The material to be moved can be characterized as a silty sandy material. Generally, moist sand has a density of 2850 lbs/yd³ which is in Appendix 6. The suggested correction factor is 2300 lb/LCY/2980 lb/LCY for a factor of 0.81.

Using these correction factors, the actual production is calculated as follows:

$$\text{Production Rate} = (O) * (D_m) * (E_j) * (P_u) * (M) = (.75) * (.81) * (.75) * (600) * (.8)$$

The resulting site specific **Production Rate is 218.7 yd³/Hr.**

RECLAMATION TIME:

Due to extremely wet conditions during late fall, early spring and winter, six months will be considered the number of working months per year. This affects the number of mobilizations that will take place and will directly effect the cost as will be shown later. The operator will not work Saturday or Sunday. The shifts will be 8 hours shifts, 5 days per week. Taking into account these constraints, there will be 173 working hours per month. Knowing the production rate per working hour, the monthly production rate of the dozer can be calculated. This was accomplished by using the relationship:

$$P_m = H_w * P_h$$

where:

P_m = Monthly Production

H_w = Working Hours per Month

P_h = Hourly Production

This calculation results in a monthly production rate of $P_m = 37,887 \text{ yd}^3/\text{month}$.

Next, the total number of working months to complete the job can be calculated using the relationship:

$$M_t = Y_t / P_m$$

where:

M_t = Total Number of Months to Complete the Job

Y_t = Total cubic Yardage to be Moved

P_m = Monthly Production Rate

The total number of months it will take to complete the job will approximate $M_t = 34.1$ months on Federal leases and an additional 1.3 months on the encroachment for a total of **$M_t = 35.4 \text{ months}$** to complete the work required for reclamation.

RECLAMATION COSTS:

Operating Costs

The operating costs for the project was calculated using section 17 of the Caterpillar Performance Handbook and local diesel fuel costs. Section 17 has graphs and tables related to fuel consumption, repair costs, and lube, oil, filter consumption/changes. These graphs and tables along with the calculation sheet used can be viewed in Appendix 7. The resulting costs are as follows:

$$O_e = ((F_u * F_c) + L_o) * (173 * E_j)$$

where:

F_u = Fuel Usage is 7 gal/hr (Appendix 7)

F_c = Fuel Cost at \$1.30/ gallon

L_o = Lube, Oils, Filters, Grease Cost: \$0.68 per hour (Appendix 7)

E_j = Operator Efficiency that was calculated in the Production Rate calculation above. In other words this is the only amount of time that the equipment will be operating.

173 = Number of work hours in a work month

This results in an operating cost for the dozer of $O_e = \$1,269$ per month.

Equipment Rental Rates, Mobilization and Insurance:

The local Caterpillar distributor, Wheeler Machinery, was consulted for rental rates. They are located at 4901 West 2100 South, West Valley City. Their current rental rate as per 6 Feb 1996 is \$8917. This rate includes discounts for long term rental. Anything over 176 hours is an additional \$44.32 per hour. Currently this project is estimated at 173 working hours per month so the regular rate with the discount will be employed for cost purposes. Insurance is \$8.06 per month. Wheeler Machinery charges a \$640 mobilization fee for projects located within a 2 hour drive of their office. This mobilization fee will apply ever 6 months.

This rate is very close to the rate that is calculated in the 1996 Machinery Information Division of K-III Directory Corp. Rental Rate Blue Book Volume 1 (Appendix 8) of \$9208 (without mobilization). The \$9208 was calculated by using the D7H LGP Series II ROPS @ \$10,645/ month and then multiplying it by the factor for Utah which is 0.865.

The equipment cost for this project is derived as follows:

$$E_r = (D_r) + ((M_r * 2)/6) + I_r$$

where:

D_r = D7 Dozer Rate: \$8917/month

M_r = Mobilization Rate per event: \$640

I_r = Insurance Rate: \$8.06/month

2 = Number of times per year that mobilization will occur

6 = Number of actual work months

This results in a monthly equipment rental rate of $E_r = \$9121$ per month.

Operator's wages (including fringes)

If the government was to contract out this effort, Davis-Bacon Act wages would have to be used. These wages for a dozer operator in Tooele County are found in Appendix 9. These include fringe benefits.. The cost was formalized by the following correlation:

$$O_w = O_r * 173$$

where:

O_r = Operator wage rate of \$25.75 (Appendix 8)

173 = Number of work hours per month

This results in a monthly Operator rate of $O_w = \$4455$ per month.

Travel Cost

Because of the remoteness of the project location, per diem and travel compensation will be necessary. This rate is set at \$66 per day and \$0.30 per mile. The estimate for the operator will include per diem five days a week and \$72 (\$0.30/mile * 240 miles) for traveling on the weekends. There will also be an allowance for travel of a supervisor to inspect the job progress once every two weeks. The traveling distance covered will be 240 miles round trip. This is sufficient for travel to Salt Lake City, Utah or Elko, Nevada. All federal documents related to the per diem can be viewed in Appendix 10.

The overall amount for per diem and travel will be calculated using the following relations:

1 month = 4½ weekends

1 month = 21 ⅔ working days

This was calculated as follows:

$$T_c = O_t + S_t + O_p + S_p$$

$$O_t = (M_r * O_m) * 4.3$$

$$S_t = (M_r * S_m) * 4.3$$

$$O_p = D_r * 21.67$$

$$S_p = D_r * 2$$

where:

O_t = Operator Travel Costs

S_t = Supervisor Travel Costs

O_p = Operator Perdiem Costs

S_p = Supervisor Perdiem Costs

M_r = Mileage Rate of \$0.30 per mile

O_m = Operator weekly mileage of 240

S_m = Supervisor weekly mileage of 120

D_r = Perdiem Rate of \$66 per day

21.67 = Number of working days per month

2 = Number of supervisor days per month

The monthly travel costs equated to $T_c = \$2027$ per month.

SUMMARY OF COSTS:

The following is a summary of all the costs included in the bond calculation:

Contractor Overhead and Profit

Means Facilities Construction Cost Data recommends a 15% increase to the total cost for the contractors overhead and profit. This is averaged from the 10% for OH & P from costs used in this book to the 20% OH & P for projects under \$2,000,000. The reference page of cost data can be viewed in Appendix 11.

Contingencies

Means Facilities Construction cost Data recommends a 2% increase to the total cost for the contingencies in final working drawing stage. The reference page of cost data can be viewed in Appendix 12.

Administrative Costs

the Washington Office guidance is to apply 18% overhead on all projects dealing with 5XXX category. This project will be considered a 5XXX project. For the reference page see Appendix 13.

TABLE 3.

Summary of Costs		
Type	Cost (\$/Month)	Cost Cumm (\$/Month)
Operating	\$1,269	\$1,269
Equipment	\$9,121	\$10,390
Operator	\$4,455	\$14,845
Travel	\$2,027	\$16,872
Subtotal	\$16,872	\$16,872
Pumps	\$113	\$16,985
Overhead & Profit (15%)	\$2,120	\$19,533
Contingency (2%)	\$325	\$19,923
Administrative (18%)	\$2,984	\$23,510

The Total Cost of the project will be \$832,868. Rounding the bond to the next nearest \$1000 the bond recommendation is for \$833,000.

correct 1.03

DIKE: 48,640

Baffles: 59,750

Ditches : 76,300

184,690

47,223 v

58,010

74,077 ✓

179,310

See map dated

22 MAY 1976

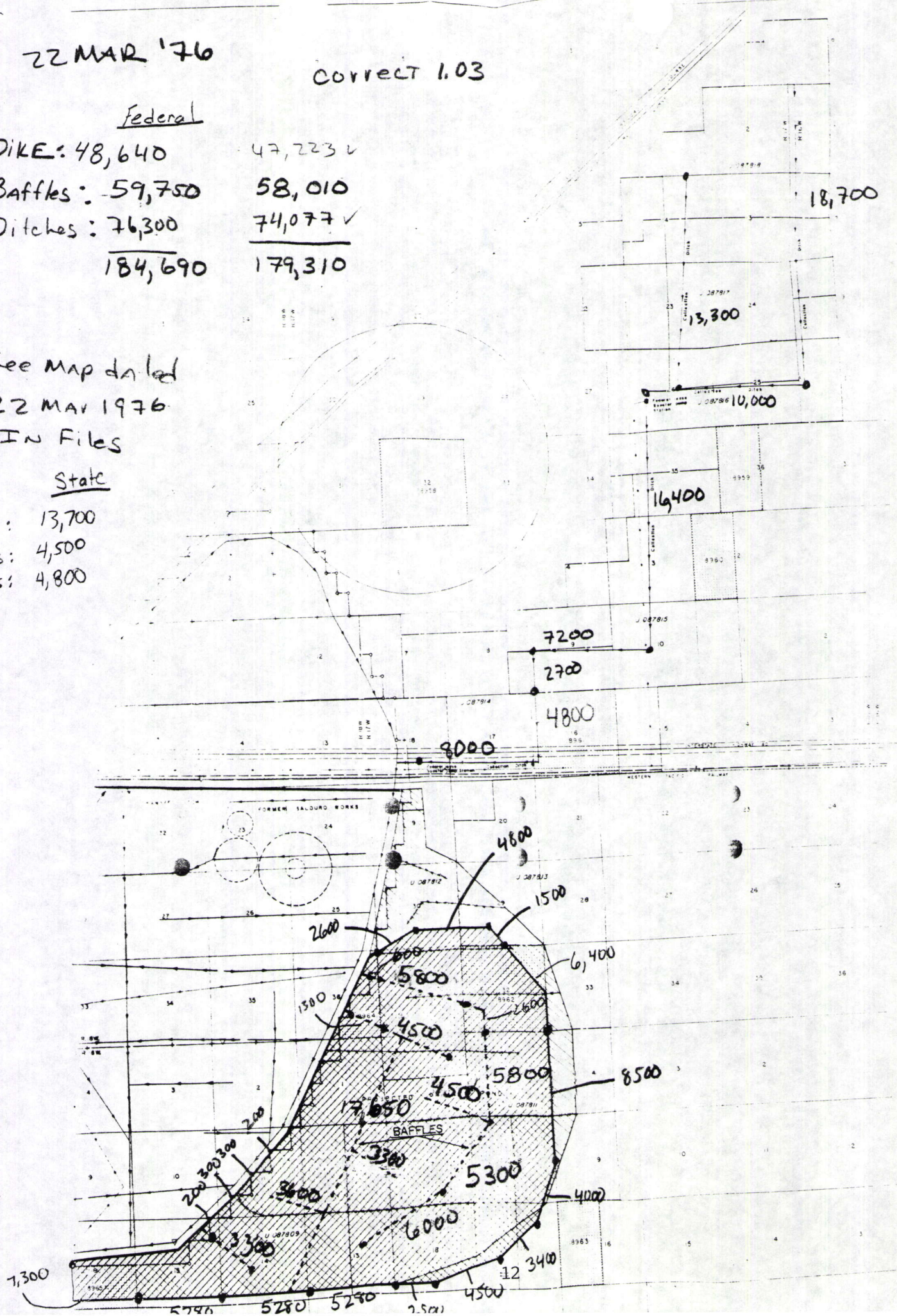
In Files

State

Dike: 13,700

Baffles: 4,500

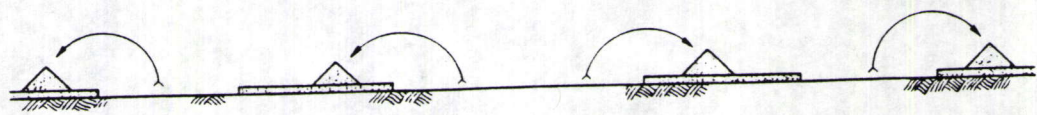
Ditches: 4,800



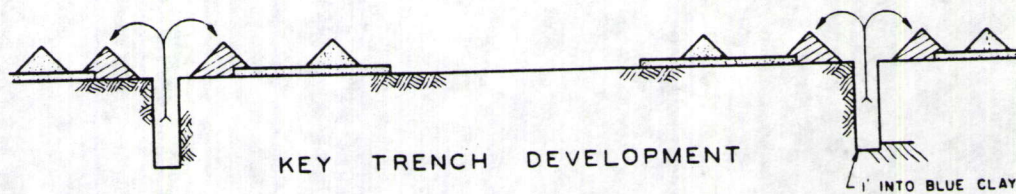
APPENDIX 2

(CROSS SECTIONS OF DITCHES)

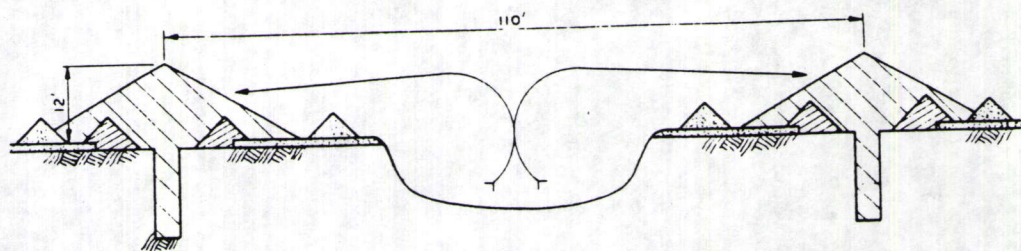
SEAL DITCH CONSTRUCTION



SALT REMOVAL



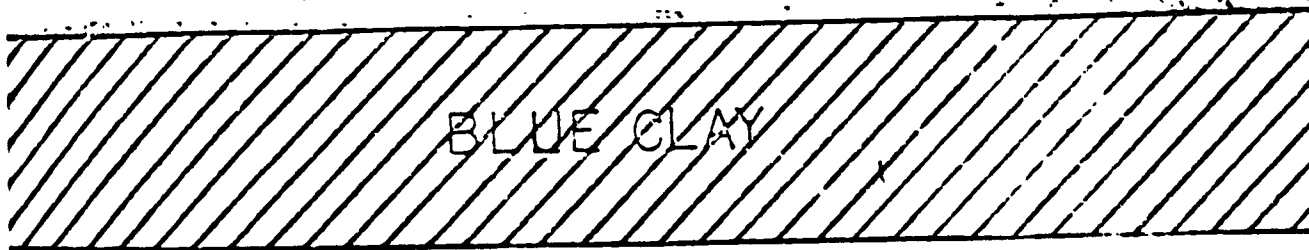
KEY TRENCH DEVELOPMENT



DIKE DEVELOPMENT & FINISH DITCH

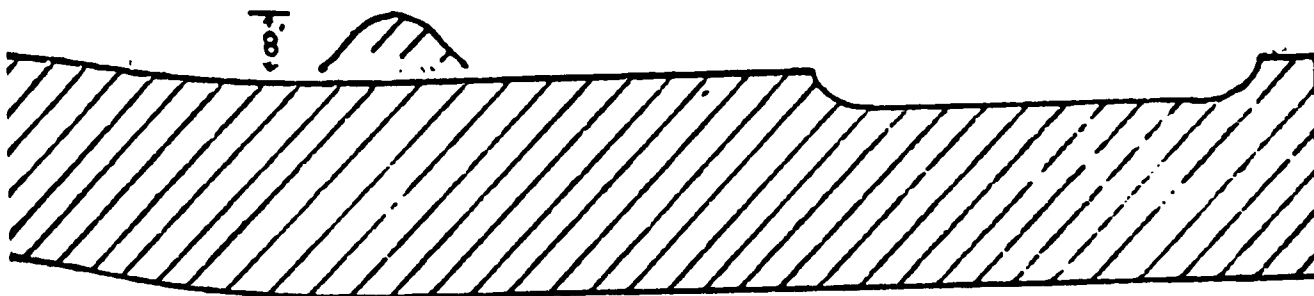
FIGURE III

Gypsum Sand, Salt or Mud

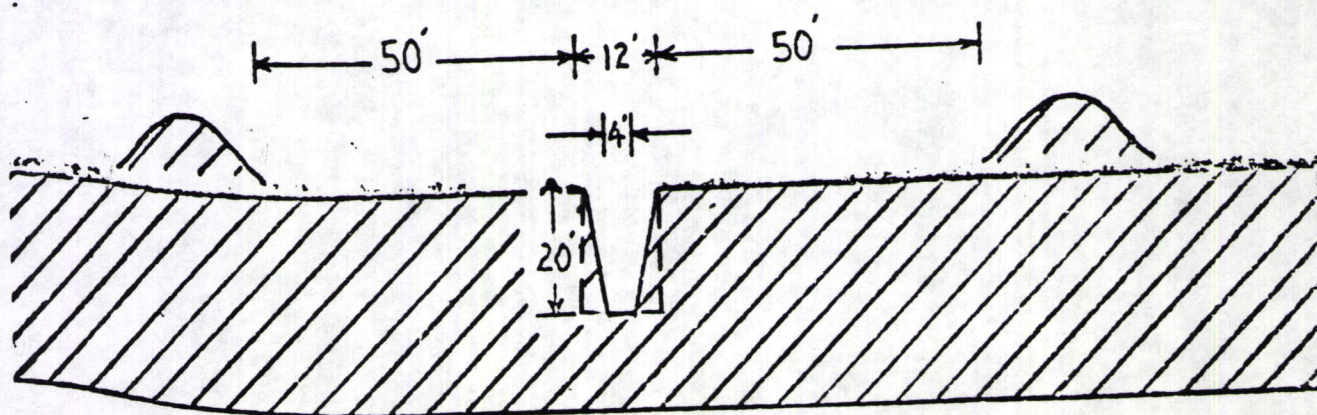
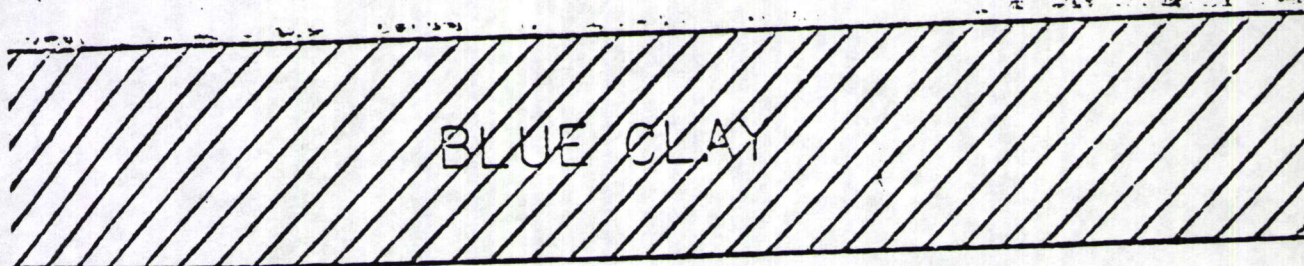


50'

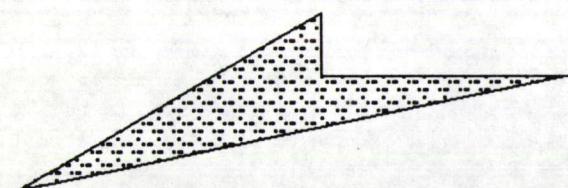
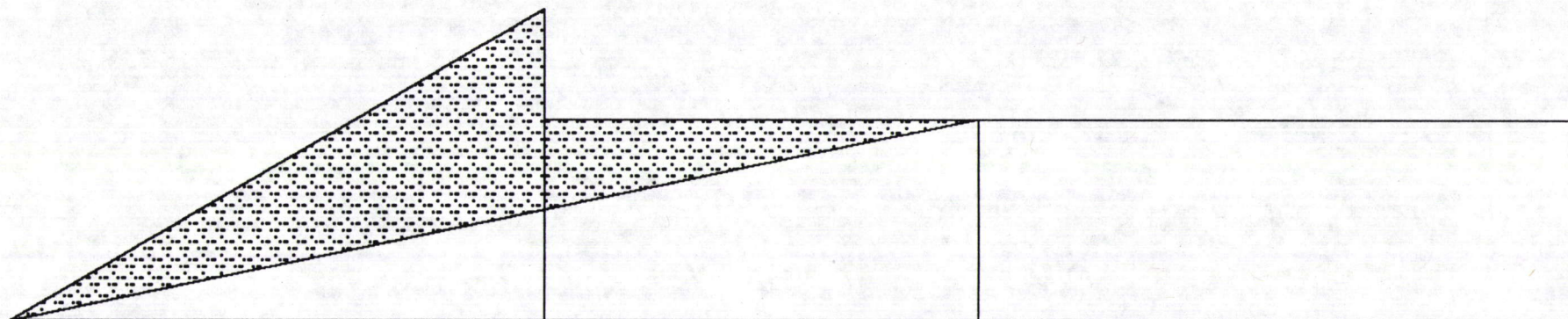
Narrow Pier



Assumption $\frac{1}{3}$ of 160 ft^2 (original Ditch Area)
 $= 53 \text{ ft}^2$



~~20x12~~ =
 $20 \times 12 = 240$ NO TAPER IN Ditch



296 sq ft measure berm, 30 degree angle of repose, 19.75 ft high. Measured 19 Jun'95

APPENDIX 3

(Utah State Dept. Of Highways Analysis)

SALT FLAT INVESTIGATIONS

Progress Report

Parts VI - XIII

In Cooperation with
Utah State Department of Highways
and Bureau of Public Roads

Engineering Experiment Station
College of Engineering

Utah State University
Logan, Utah

January 1962

Property of
UTAH GEOLOGICAL & MINERAL SURVEY

1. The car's weight is supported only instantaneously and does not allow sufficient time for the salt to deform by creep nor for the confined soil to consolidate.

2. The tire load causes a three-dimensional rather than a two-dimensional stress pattern and additional support of the tire is developed by the salt to the front and the rear as well as to the sides of the tire. This is not true of the two-dimensional highway stress pattern.

3. It must be recognized that a car is very small in comparison with the road bed, and the loads which might be distributed through the blocks of salt provide a major assist in transferring tire loads to the soil. On the other hand, the blocks of salt are so small in comparison with the size of the roadbed that they may be thought of more in terms of bricks floating in a matrix of mud.

4. Actually the soil beneath the salt has a higher bearing capacity than anticipated. Unconfined compression tests indicate that the bearing capacity of the clay is greater than 10 psi. (Refer to Part VI.) Certainly a strength of 10 psi is adequate to support a highway weighing about 700 pounds per square foot, or about 5 psi. Some unconfined compression tests show bearing capacities less than 10 psi; but in every case the material is not clay, but silt or sand. Loose silt or sand in a saturated state can become quick (liquified) if load is applied instantaneously, but the construction of a highway is not an instantaneous process, and the silt and sand layers will have time to consolidate, and if confined, will certainly carry the load.

Conclusions

1. The salt crust cannot be depended upon to contribute flexural support for the proposed interstate highway. It can serve no better purpose than fill material and a possible temporary means of distributing loads of equipment and highway fill until consolidation of the soil can be accomplished.

2. If the salt must be used as fill, then it is desirable that it be sealed against groundwater flow. A serious limitation of salt is its instability in the presence of groundwater flow and its tendency to dissolve and re-crystallize thus relieving stresses and reducing the load-carrying capacity. It may be advisable to place a short section of fill on the salt after preliminary soil tests are made. By observing it for a year, the amount of dissolution and recrystallization of the salt may be noted. However, the Western Pacific Railway line has been placed on fill directly on the salt crust. The railroad company's experience and tests on this fill may reveal the necessary information.

APPENDIX 4

(Caterpillar Tractor Specifications)



MODEL	D7H LGP Series II		D8N		D8N LGP		D9N	
Flywheel Power	171 kW	230 hp	212 kW	285 hp	212 kW	285 hp	276 kW	370 hp
Operating Weight*							42 816 kg	94,196 lb
(Power Shift)	26 853 kg	59,200 lb	—	—	—	—	—	—
(Power Shift Differential Steer)	27 125 kg	59,800 lb	36 842 kg	81,222 lb	36 746 kg	81,025 lb	—	—
Engine Model	3306		3406		3406		3408	
Rated Engine RPM	2100		2100		2100		1900	
No. of Cylinders	6		6		6		8	
Bore	121 mm	4.75"	137 mm	5.4"	137 mm	5.4"	137 mm	5.4"
Stroke	152 mm	6"	165 mm	6.5"	165 mm	6.5"	152 mm	6"
Displacement	10.5 L	638 in ³	14.6 L	893 in ³	14.6 L	893 in ³	18 L	1099 in ³
Track Rollers (Each Side)	7		8		8		8	
Width of Standard Track Shoe	914 mm	36"	560 mm	22"	965 mm	38"	610 mm	24"
Length of Track on Ground	3175 mm	125"	3.21 m	10'6"	3.20 m	10'6"	3.47 m	11'4.8"
Ground Contact Area (W/Std. Shoe)	5.82 m ²	9029 in ²	3.6 m ²	5580 in ²	6.2 m ²	9576 in ²	4.24 m ²	6571 in ²
Track Gauge	2235 mm	88"	2.08 m	6'10"	2.34 m	7'8"	2.25 m	74.6"
GENERAL DIMENSIONS:								
Height (Stripped Top)**	2.55 m	8'4"	2.59 m	8'6"	2.59 m	8'6"	2.93 m	9'7.3"►
Height (To Top of ROPS)	—	—	3.43 m	11'3"	3.43 m	11'3"	—	—
Height (To Top of ROPS Canopy)	3.42 m	11'2.6"	—	—	—	—	3.91 m	12'9.8"►
Height (To Top of Cab ROPS)	3.50 m	11'6"	—	—	—	—	—	—
Overall Length (With SU Blade)	—	—	—	—	—	—	6.87 m	22'6.4"
(Without Blade)	—	—	—	—	—	—	5.17 m	16'11.5"
Overall Length (With P Blade)	5.54 m	18'2"	—	—	—	—	—	—
(Without Blade)	4.62 m	15'2"	—	—	—	—	—	—
Overall Length (With S Blade)	—	—	6.24 m	20'6"	6.24 m	20'6"	—	—
(Without Blade)	—	—	4.93 m	16'2"	4.93 m	16'2"	—	—
Width (Over Trunnions)	3.37 m	11'1"	3.05 m	10'	3.55 m	11'7"	2.93 m	9'7"
Width (W/O Trunnions — Std. Shoe)	3.15 m	10'4"	2.7 m	8'8"	—	—	2.89 m	9'5.9"
Width (With Standard Shoe)	—	—	—	—	3.37 m	10'10"	—	—
Ground Clearance	488 mm	19.2"	528 mm	20.8"	519 mm	20.4"	505 mm	19.9"■
Blade Types and Widths:								
Straight	4.49 m	14'9"	—	—	—	—	—	—
Angle Straight	—	—	4.96 m	16'3"	—	—	—	—
Universal	—	—	4.26 m	14'0"	3.94 m	12'11"	4.66 m	15'3.4"
Semi-U	—	—	3.94 m	12'11"	4.52 m	14'10"	4.32 m	14'1.94"
Fuel Tank Refill Capacity	479 L	127 U.S. gal	488 L	129 U.S. gal	488 L	129 U.S. gal	731 L	193 U.S. gal

*Operating Weight includes ROPS canopy, operator, lubricants, coolant, full fuel tank, hydraulic controls and fluids, semi universal with tilt, back-up alarm, seat belt lights, rigid drawbar and front towing device.

— D8N equipped with track guides, 635 mm (24") MS shoes, single shank ripper and subblade.

— D9N include track guides.

**Height (stripped top) — without ROPS canopy, exhaust, seat back or other easily removed encumbrances.

► Dimensions to flat of shoe. For dimensions to grouser tips add 84 mm (3.3") for D9N.

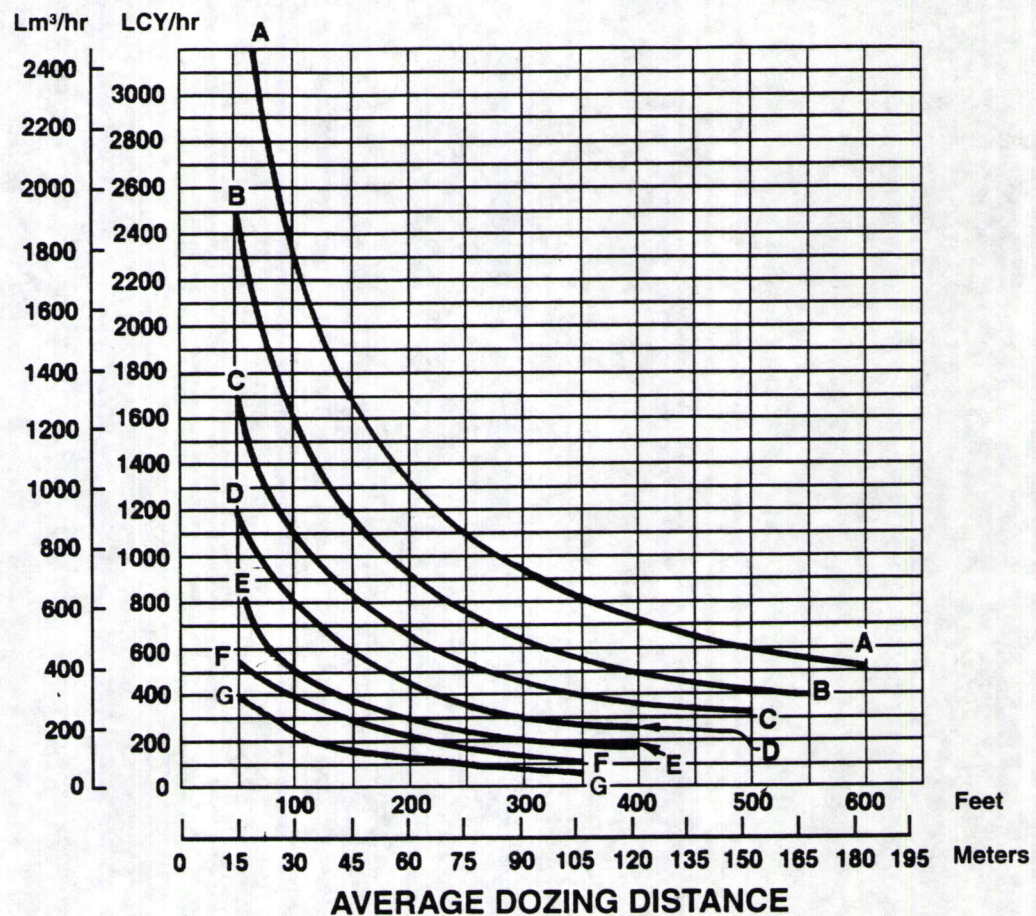
Note: D8N LGP is offered as a custom product.

■ SAE J1234

APPENDIX 5

(Tractor Production Estimation Using “SU” Blade)

ESTIMATED DOZING PRODUCTION • Semi-Universal Blades • D5H through D11N



KEY

- A — D11N-11SU
- B — D10N-10SU
- C — D9N-S9U
- D — D8N-8SU
- E — D7H-7SU
- F — D6H-6SU
- G — D5H XL-5SU XL

NOTE: This chart is based on numerous field studies made under varying job conditions. Refer to correction factors following these charts.

Job Factors
Estimating Production Off-The-Job
● Example Problem

Bulldozers

1

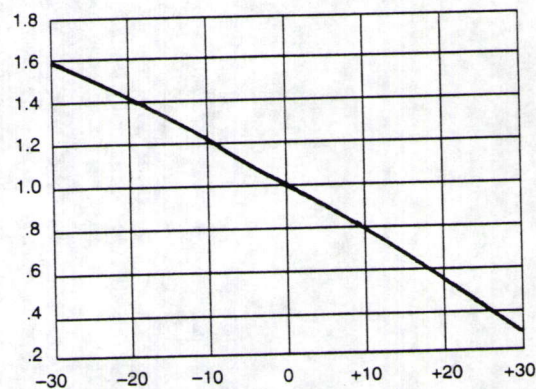
JOB CONDITION CORRECTION FACTORS

	TRACK- TYPE TRACTOR	WHEEL- TYPE TRACTOR
OPERATOR —		
Excellent	1.00	1.00
Average	0.75	0.60
Poor	0.60	0.50
MATERIAL —		
Loose stockpile	1.20	1.20
Hard to cut; frozen —		
with tilt cylinder	0.80	0.75
without tilt cylinder	0.70	—
cable controlled blade	0.60	—
Hard to drift; "dead" (dry, non-cohesive material) or very sticky material	0.80	0.80
Rock, ripped or blasted	0.60-0.80	—
SLOT DOZING	1.20	1.20
SIDE BY SIDE DOZING	1.15-1.25	1.15-1.25
VISIBILITY —		
Dust, rain, snow, fog or darkness	0.80	0.70
JOB EFFICIENCY —		
50 min/hr	0.83	0.83
40 min/hr	0.67	0.67
DIRECT DRIVE TRANSMISSION (0.1 min. fixed time)	0.80	—
BULLDOZER*		
Adjust based on SAE capacity relative to the base blade used in the Estimated Dozing Production graphs.		
GRADES — See following graph.		

*Note: Angling blades and cushion blades are not considered production dozing tools. Depending on job conditions, the A-blade and C-blade will average 50-75% of straight blade production.

% Grade vs. Dozing Factor

(-) Downhill
(+) Uphill



ESTIMATING DOZER PRODUCTION OFF-THE-JOB

Example problem:

Determine average hourly production of a D8N/8SU (with tilt cylinder) moving hard-packed clay an average distance of 45 m (150 feet) down a 15% grade, using a slot dozing technique.

Estimated material weight is 1600 kg/Lm³ (2650 lb/LCY). Operator is average. Job efficiency is estimated at 50 min/hr.

Uncorrected Maximum Production — 458 Lm³/h (600 LCY/hr) (example only)

Applicable Correction Factors:

Hard-packed clay is "hard to cut" material -0.80
 Grade correction (from graph)-1.30
 Slot dozing-1.20
 Average operator-0.75
 Job efficiency (50 min/hr)-0.83
 Weight correction(2300/2650)-0.87

$$\begin{aligned} \text{Production} &= \text{Maximum Production} \times \text{Correction Factors} \\ &= (600 \text{ LCY/hr}) (0.80) (1.30) (1.20) \\ &\quad (0.75) (0.83) (0.87) \\ &= 405.5 \text{ LCY/hr} \end{aligned}$$

To obtain production in metric units, the same procedure is used substituting maximum uncorrected production in Lm³.

$$\begin{aligned} &= 458 \text{ Lm}^3/\text{h} \times \text{Factors} \\ &= 309.6 \text{ Lm}^3/\text{h} \end{aligned}$$

Appendix 4
1-61

APPENDIX 6

(Material Density from Caterpillar Handbook)

Tables

WEIGHT* OF MATERIALS	LOOSE		BANK		LOAD FACTORS
	kg/m³	lb/yd³	kg/m³	lb/yd³	
Basalt	1960	3300	2970	5000	.67
Bauxite, Kaolin	1420	2400	1900	3200	.75
Caliche	1250	2100	2260	3800	.55
Carnotite, uranium ore	1630	2750	2200	3700	.74
Cinders	560	950	860	1450	.66
Clay — Natural bed	1660	2800	2020	3400	.82
Dry	1480	2500	1840	3100	.81
Wet	1660	2800	2080	3500	.80
Clay & gravel — Dry	1420	2400	1660	2800	.85
Wet	1540	2600	1840	3100	.85
Coal — Anthracite, Raw	1190	2000	1600	2700	.74
Washed	1100	1850			.74
Ash, Bituminous Coal	530-650	900-1100	590-890	1000-1500	.93
Bituminous, Raw	950	1600	1280	2150	.74
Washed	830	1400			.74
Decomposed rock —					
75% Rock, 25% Earth	1960	3300	2790	4700	.70
50% Rock, 50% Earth	1720	2900	2280	3850	.75
25% Rock, 75% Earth	1570	2650	1960	3300	.80
Earth — Dry packed	1510	2550	1900	3200	.80
Wet excavated	1600	2700	2020	3400	.79
Loam	1250	2100	1540	2600	.81
Granite — Broken	1660	2800	2730	4600	.61
Gravel — Pitrun	1930	3250	2170	3650	.89
Dry	1510	2550	1690	2850	.89
Dry 6-50 mm (1/4"-2")	1690	2850	1900	3200	.89
Wet 6-50 mm (1/4"-2")	2020	3400	2260	3800	.89
Gypsum — Broken	1810	3050	3170	5350	.57
Crushed	1600	2700	2790	4700	.57
Hematite, iron ore, high grade	1810-2450	4000-5400	2130-2900	4700-6400	.85
Limestone — Broken	1540	2600	2610	4400	.59
Crushed	1540	2600			
Magnetite, iron ore	2790	4700	3260	5500	.85
Pyrite, iron ore	2580	4350	3030	5100	.85
Sand — Dry, loose	1420	2400	1600	2700	.89
Damp	1690	2850	1900	3200	.89
Wet	1840	3100	2080	3500	.89
Sand & clay — Loose	1600	2700	2020	3400	.79
Compacted	2400	4050			
Sand & gravel — Dry	1720	2900	1930	3250	.89
Wet	2020	3400	2230	3750	.91
Sandstone	1510	2550	2520	4250	.60
Shale	1250	2100	1660	2800	.75
Slag — broken	1750	2950	2940	4950	.60
Snow — Dry	130	220			
Wet	520	860			
Stone — crushed	1600	2700	2670	4500	.60
Taconite	1630-1900	3600-4200	2360-2700	5200-6100	.58
Top Soil	950	1600	1370	2300	.70
Taprock — broken	1750	2950	2610	4400	.67
Wood Chips**	—	—	—	—	—

*Varies with moisture content, grain size, degree of compaction, etc. Tests must be made to determine exact material characteristics.

**Weights of commercially important wood species can be found in the last pages of the Logging & Forest Products section. To obtain wood weights use the following equations: lb/yd³ = (lb/ft³) × .4 × 27
kg/m³ = (kg/m³) × .4

APPENDIX 7

(Operating Costs for Lubrication & Fuel Consumption)

QUICK ESTIMATOR TABLE

- Approximate hourly cost (\$ U.S.) of lube oils, filters and grease (materials).
 - Approximate hourly cost (\$ U.S.) of lube oils, filters and grease (labor).
- Computed over 2000 hour period.

FACTORS USED (Labor)

For the labor figure shown we assumed an hourly labor rate of \$40.00*. This rate was applied to the assumed labor times of:

- 30 minutes per lube oil change
- 5 minutes per filter change
- 1 minute per grease fitting

*\$50.00 for D4H thru D7H.

FACTORS USED (Materials)

- Lube oils at U.S. \$3.50* per U.S. gallon. (Capacities and change intervals from each model's Lube and Maintenance Guide.)
- Filters at suggested U.S. consumer's list price. (See previous page for filter computation formula.)
- Grease at \$.04 per fitting. (See consumption tables for each model's number of fittings over 2000 hour period.)

*\$6.35 per gallon on D4H thru D7H.

Model	Approx. Cost Per Hour		Model	Approx. Cost Per Hour		Model	Approx. Cost Per Hour Materials
	Materials	Labor		Materials	Labor		
Track-Type Tractors			Backhoe Loaders		Articulated Trucks		
D3C Series III	.15	.08	416B	.39	2.92	D20D	.48
D4C Series III	.15	.08	426B	.39	2.92	D25D	.48
D5C Series III	.20	.08	428B	.39	2.92	D30D	.48
D4H Series II & III	.37	.34	436B	.39	2.92	D40D	.49
D5H Series II	.47	.25	438B	.39	2.92	D250D	.48
D6D & D6E	.45	.26	446B	.54	3.84	D300D	.48
D6H Series II	.55	.22	Skidders		D350D	.50	
D7G	.50	.46	518C	.24	.17	D400D	.67
D7H Series II	.49	.19	528B	.30	.17	Wheel Tractors & Compactors	
D8L	.61		530B	.33	.17	814B	.38
D8N	.53	.10	Pipelayers		815B	.39	
D9N	.75	.31	571G	.41	.97	816B	.39
D10N	.86	.32	572G	.51	.91	824C	.45
D11N	1.15	.28	578	—	—	825C	.47
Agricultural Tractors			589	.83	.56	826C	.47
D4E SR	.20	.20	Wheel Tractor-Scrapers		834B	.72	
D6E SR	.31	.16	613C Series II	.42	1.20	Wheel Loaders & Integrated Toolcarriers	
Challenger 65C	.61	.28	615C Series II	.52	1.32	910F (3F-3R)	.19
Challenger 70C	.61	.28	621F	.60	.54	IT12F	.18
Challenger 75C	.61	.28	623F	.66	1.27	918F	.20
Challenger 85C	.61	.28	627F	.86	.66	IT18F	.20
Motor Graders			631E Series II	.72	.64	928F	.25
120G	.33	.18	633E	.80	1.27	IT28F	.25
130G	.36	.18	637E Series II	.95	.74	930T	.28
12G	.32	.16	651E	1.11	.77	936F	.32
140G	.39	.18	657E	1.41	1.07	938	.31
14G	.52	.18	Construction & Mining Trucks & Tractors		950F Series II	.34	
16G	.61	.18	768C	1.17	.53	960F	.34
Excavators			769C	1.17	.42	966F Series II	.44
214B	.34	.82	771C	1.17	.42	970F	.45
307	.70	.43	772B	1.29	.53	980F	.52
311	.62	.45	773B	1.29	.42	988F	1.06
312	.63	.45	775B	1.29	.53	990	1.60
315	.60	.46	776C	1.51	.56	992D	1.57
320 (3066)	.76	.46	777C	1.51	.45	994	2.82
320 (3116)	.83	.46	784B	1.89	.59	Track Loaders	
322	1.09	.46	785B	1.89	.59	933	.22
325	.73	.46	789B	2.55	.61	939	.26
330	.80	.46	793B	3.46	.63	953B	.26
350	1.58	.83				963	.24
375	2.19	.85				973	.24
5080	NA						
5130	NA						

*Includes coolant maintenance costs.

Note: These figures are based upon machines operating in ideal conditions with normal lubricant usage. Keep in mind they are approximate hourly costs. Your figures may vary depending upon condition, application severity and local labor rates. By using prices more common in your region, and with the assistance of your dealer representative, you can estimate a more accurate hourly cost for lube oils, filters and grease.

- Track-Type Tractors
- Agricultural Tractors

FUEL CONSUMPTION TABLES & LOAD FACTOR GUIDES... (H214)
TRACK-TYPE TRACTORS

Model	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S.
D3C & LGP Series III	4-7½	1-2	7½-11	2-3	9½-13	2½-3
D4C & LGP Series III	5½-9½	1½-2½	9½-13	2½-3½	11-15	3-4
D5C & LGP Series III	5½-9½	1½-2½	9½-13	2½-3½	13-17	3½-4½
D4E	5½-9½	1½-2½	9½-13	2½-3½	11-15	3-4
D4H Series II	6-10½	1½-3	10½-14½	3-4	12½-17	3½-4½
D4H XL & LGP Series III	6-10½	1½-3	10½-14½	3-4	12½-17	3½-4½
D5B	9½-13	2½-3½	11-17	3-4½	15-21	4-5½
D5H Series II, XL & LGP	11-15	3-4	12½-19½	3½-5	17-24	4½-5½
D6D & LGP	11-19	3-5	15-21	4-5½	21-26	5½-6½
D6E	11-20½	3½-5	15½-21	4-6	23-28½	6-7
D6H Series II, XL, XR & LGP	13-22½	3½-6	17½-25	4½-6½	25-30½	6½-7½
D7G Series II*	19-25	5-6½	26-34	7-9	32-40	8½-9½
D7H Series II, XR & LGP	19-23	5-6	25-28	6½-7½	32-36	8½-9½
D8N & LGP	23-28	6-7½	28-38	7½-10	38-51	10-13
D9N	32-44	8½-11½	44-53	11½-14	52-69	14½-17½
D10N	44-59	11½-15½	59-76	15½-20	76-93	20-23
D11N	62-87	16½-23	87-112	23-29½	112-134	29½-32½

*D7G fuel consumption data is based on a precombustion chamber equipped engine. Fuel consumption for a direct injection equipped D7G should be approximately 10% less.

AGRICULTURAL TRACTORS

Model	Low		Medium		High	
	liter	U.S. gal	liter	U.S. gal	liter	U.S.
D4E SR	5½-9½	1½-2½	9½-13	2½-3½	11-15	3-4
D6E SR	11-19	3-5	15-21	4-5½	21-26	5½-6½
Challenger 35	**	**	**	**	**	*
Challenger 45	**	**	**	**	**	*
Challenger 65C	30-38	8-10	38-46	10-12	46-53	12-13½
Challenger 70C	30-38	8-10	38-46	10-12	46-53	12-13½
Challenger 75C	34-42	9-11	42-49	11-13	49-57	13-14½
Challenger 85C	34-42	9-11	42-49	11-13	49-57	13-14½

**Insufficient data.

LOAD FACTOR GUIDE

- High:** Steady ripping, shuttle pushloading and downhill dozing. Agricultural drawbar work at full throttle, engine lugged to max. power most of the time; Little or no idling or travel in reverse.
- Medium:** Production dozing, pulling scrapers, most pushloading. Agricultural drawbar work at full throttle but not always lugging engine. Some idling and some travel with no load.
- Low:** Considerable idling or travel with no load.

APPENDIX 8

(Equipment Rental Rates)

RENTAL RATE BLUE BOOK
FOR
CONSTRUCTION EQUIPMENT
VOLUME 1

§9 TRACTORS & EARTHMOVING

4/96 replaces 4/95

TRACTORS & EARTHMOVING

TABLE OF CONTENTS

NOTE: The cost breakdown under "Estimated Operating Cost \$/Hr." in this section is compatible with the amounts shown under "Total Operating Cost \$/Hour" in Section 9, also dated 4/96, of the *Cost Reference Guide for Construction Equipment*.

RIGID FRAME GRADERS	1
ARTICULATED FRAME GRADERS	2
GRADER REAR RIPPER/SCARIFIERS	5
GRADER SCARIFIERS	5
GRADER SNOW REMOVAL EQUIPMENT	5
STANDARD CRAWLER LOADERS	5
LGP CRAWLER LOADERS	7
CRAWLER LOADER GENERAL PURPOSE BUCKETS	8
CRAWLER LOADER MULTI-PURPOSE BUCKETS	8
CRAWLER LOADER HYDRAULIC REAR RIPPERS	8
CRAWLER LOADER REAR MOUNTED WINCHES	8
SKID STEER LOADERS	9
BARE INDUSTRIAL TRACTORS	13
TRACTOR-LOADERS	13
TRACTOR-LOADER-BACKHOES	15
4-WD ARTICULATED WHEEL LOADERS	26
NON-ARTICULATED WHEEL LOADERS	39
WHEEL LOADER MULTI-PURPOSE BUCKETS	40
WHEEL LOADER SIDE DUMP BUCKETS	40
WHEEL LOADER ROPS CABS (EROPS)	41
SINGLE ENGINE CONVENTIONAL SCRAPERS	41
DUAL ENGINE CONVENTIONAL SCRAPERS	41
SINGLE ENGINE ELEVATING SCRAPERS	42
STANDARD CRAWLER DOZERS	43
LGP CRAWLER DOZERS	47
SPECIAL APPLICATION CRAWLER TRACTORS	49
PIPELAYERS	50
CRAWLER TRACTOR MULTI-SHANK RIPPERS	50
CRAWLER TRACTOR SINGLE SHANK RIPPERS	50
CRAWLER TRACTOR TOWING WINCHES	50
WHEEL DOZERS	51

TRACTORS & EARTHMOVING

Table 2: (1977-1986)

EQUIPMENT TYPES	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
RIGID FRAME GRADERS	.847	.854	.866	.875	.890	.904	.918	.922	.922	.926
ARTICULATED FRAME GRADERS	.793	.802	.818	.831	.851	.870	.888	.894	.894	.900
GRADER ATTACHMENTS	.678	.693	.717	.737	.768	.797	.826	.835	.835	.844
CRAWLER LOADERS	.819	.835	.849	.866	.883	.896	.900	.900	.900	.905
CRAWLER LOADER ATTACHMENTS	.703	.720	.739	.746	.780	.801	.817	.829	.853	.853
SKID STEER LOADERS	.866	.879	.893	.911	.930	.939	.940	.946	.954	.954
INDUSTRIAL TRACTORS	.805	.820	.838	.858	.882	.908	.921	.922	.931	.941
4-WD ARTICULATED WHEEL LOADERS	.777	.794	.812	.838	.877	.896	.901	.903	.905	.912
NON-ARTICULATED WHEEL LOADERS	.831	.844	.858	.878	.907	.921	.925	.926	.928	.933
WHEEL LOADER ATTACHMENTS	.616	.641	.669	.699	.743	.808	.839	.848	.851	.854
CONVENTIONAL SCRAPERS	.832	.840	.852	.861	.877	.891	.905	.910	.910	.914
ELEVATING SCRAPERS	.829	.836	.848	.859	.874	.889	.903	.908	.908	.912
CRAWLER DOZERS	.816	.832	.845	.863	.880	.893	.897	.897	.897	.902
SPECIAL APPLICATION CRAWLER TRACTORS	.832	.846	.859	.875	.890	.902	.906	.906	.906	.910
PIPELAYERS	.888	.898	.906	.917	.927	.935	.938	.938	.938	.940
CRAWLER TRACTOR ATTACHMENTS	.733	.748	.765	.772	.802	.821	.836	.846	.867	.867
WHEEL DOZERS	.804	.823	.844	.869	.896	.910	.911	.921	.931	.931

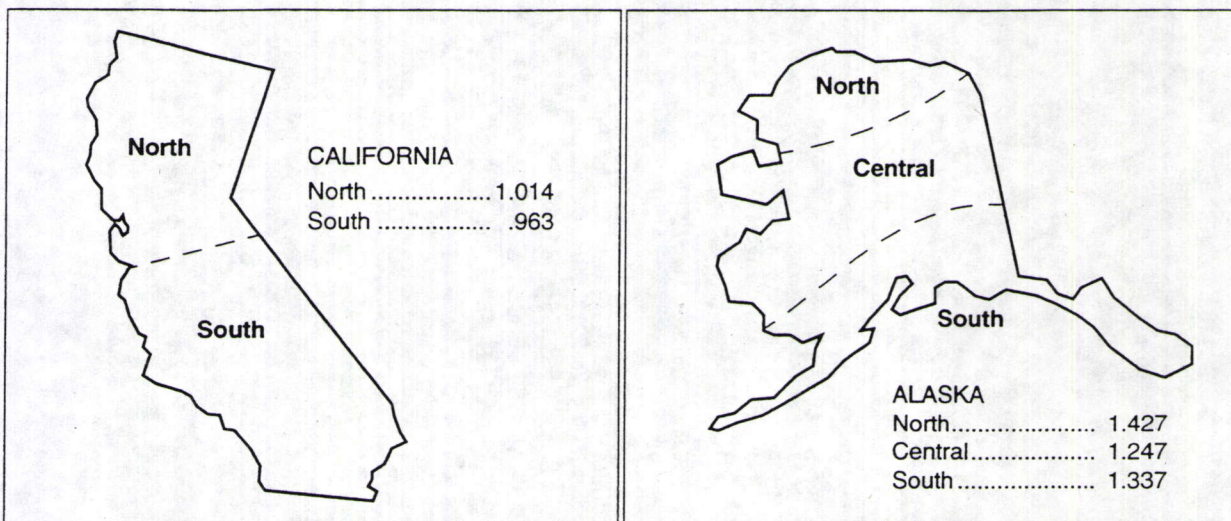
TRACTORS & EARTHMOVING

REGIONAL ADJUSTMENT MAPS

The following regional adjustments may be used to modify the average equipment rates shown in this section. These adjustments reflect regional variations in factors that affect equipment ownership costs. Adjustments for extreme variations within regions should be considered separately. To make regional adjustments, multiply the average rate by the factor listed for the specific region. For example:

$$\begin{array}{rcl} \text{Average Monthly Rate} & = & \$550.00 \\ \text{Regional Adjustment Factor} & = & \times 1.07 \\ \hline \text{Adjusted Monthly Rate} & = & \$588.50 \end{array}$$

Regional adjustment factors apply only to the rental rates; they are not meant to be adjustments to the "Estimated Operating Cost \$/Hr." For a complete statement on the *Regional Adjustment Maps*, see Section 1, "INTRODUCTION."



STATES		Adjustment
Alabama		.926
Alaska	North	1.427
	Central	1.247
	South	1.337
Arizona		.875
Arkansas		.918
California	North	1.014
	South	.963
Colorado		.919
Connecticut		1.037
Delaware		.952
District of Columbia		.960
Florida		.951
Georgia		.932
Hawaii		1.016
Idaho		.873
Illinois		1.014
Indiana		.985
Iowa		.951
Kansas		.937
Kentucky		.970
Louisiana		.942
Maine		.945
Maryland		.929
Massachusetts		1.031
Michigan		1.012
Minnesota		1.112
Mississippi		.919
Missouri		.978
Montana		1.012
Nebraska		.912
Nevada		.941
New Hampshire		.929
New Jersey		.962
New Mexico		.822
New York		1.079
North Carolina		.919
North Dakota		.990
Ohio		.996
Oklahoma		.918
Oregon		.938
Pennsylvania		1.040
Rhode Island		1.021
South Carolina		.909
South Dakota		1.002
Tennessee		.930
Texas		.889
Utah		.865
Vermont		.937
Virginia		.949
Washington		.978
West Virginia		.993
Wisconsin		1.080
Wyoming		1.027

ISLANDS		Adjustment
Guam		1.040
Marshall Islands		1.046
Puerto Rico		.906
Virgin Islands		.906

10,647 x 1.07 = 11,392.29

TRACTORS & EARTHMOVING

LGP CRAWLER DOZERS (continued)

Model (Yr.Disc.)	Dozer Type	Operator Protection	HP	Monthly \$	Weekly \$	Daily \$	Hourly \$	Estimated Operating Cost \$/Hr.
DIESEL POWERED (CONT.)								
CATERPILLAR								
D3C LGP (1991)	Power Angle Tilt	EROPS	67.0	2,870.00	805.00	200.00	30.00	9.00
D3C LGP (1991)	Power Angle Tilt	ROPS	67.0	2,685.00	750.00	190.00	29.00	8.75
D3C LGP (1991)	Power Tilt Outside	EROPS	67.0	2,855.00	800.00	200.00	30.00	9.00
D3C LGP (1991)	Power Tilt Outside	ROPS	67.0	2,670.00	750.00	190.00	29.00	8.70
D3C LGP SERIES II (1994)	Power Angle Tilt	EROPS	70.0	3,185.00	890.00	225.00	34.00	9.35
D3C LGP SERIES II (1994)	Power Angle Tilt	ROPS	70.0	2,985.00	835.00	210.00	32.00	9.10
D3C SERIES III LGP	Power Angle Tilt	ROPS	71.0	3,285.00	920.00	230.00	35.00	9.35
D3CS LGP (1991)	Straight Power Tilt	EROPS	65.0	3,170.00	890.00	225.00	34.00	9.30
D3CS LGP (1991)	Straight Power Tilt	ROPS	65.0	2,985.00	835.00	210.00	32.00	9.00
D3CS LGP SERIES II (1994)	Straight Power Tilt	EROPS	70.0	3,805.00	1,065.00	265.00	40.00	10.10
D3CS LGP SERIES II (1994)	Straight Power Tilt	ROPS	70.0	3,605.00	1,010.00	255.00	38.00	9.85
D4C LGP (1991)	Power Angle Tilt	EROPS	78.0	3,175.00	890.00	225.00	34.00	9.85
D4C LGP (1991)	Power Angle Tilt	ROPS	78.0	2,985.00	835.00	210.00	32.00	9.60
D4C LGP SERIES II (1994)	Power Angle Tilt	EROPS	80.0	3,505.00	980.00	245.00	37.00	10.10
D4C LGP SERIES II (1994)	Power Angle Tilt	ROPS	80.0	3,305.00	925.00	230.00	35.00	9.85
D4C SERIES III LGP	Power Angle Tilt	EROPS	81.0	3,935.00	1,100.00	275.00	41.00	10.60
D4C SERIES III LGP	Power Angle Tilt	ROPS	81.0	3,625.00	1,015.00	255.00	38.00	10.20
D4H LGP SERIES II (1992)	Power Angle Tilt	EROPS	90.0	3,715.00	1,040.00	260.00	39.00	10.90
D4H LGP SERIES II (1992)	Power Angle Tilt	ROPS	90.0	3,480.00	975.00	245.00	37.00	10.55
D4H LGP SERIES II (1992)	Straight	EROPS	90.0	3,680.00	1,030.00	260.00	39.00	10.85
D4H LGP SERIES II (1992)	Straight	ROPS	90.0	3,450.00	965.00	240.00	36.00	10.50
D4H LGP SERIES III	Power Angle Tilt	EROPS	105.0	4,355.00	1,220.00	305.00	46.00	12.20
D4H LGP SERIES III	Power Angle Tilt	ROPS	105.0	4,040.00	1,130.00	285.00	43.00	11.75
D5C LGP (1993)	Power Angle Tilt	EROPS	90.0	3,455.00	965.00	240.00	36.00	10.60
D5C LGP (1993)	Power Angle Tilt	ROPS	90.0	3,265.00	915.00	230.00	35.00	10.35
D5C SERIES III LGP	Power Angle Tilt	EROPS	91.0	4,025.00	1,125.00	280.00	42.00	11.15
D5C SERIES III LGP	Power Angle Tilt	ROPS	91.0	3,720.00	1,040.00	260.00	39.00	10.75
D5H LGP SERIES II	Power Angle Tilt	EROPS	130.0	6,160.00	1,725.00	430.00	65.00	15.40
D5H LGP SERIES II	Power Angle Tilt	ROPS	130.0	5,890.00	1,650.00	415.00	62.00	15.00
D6H DS LGP SERIES II	Straight	EROPS	165.0	7,505.00	2,100.00	525.00	79.00	18.90
D6H DS LGP SERIES II	Straight	ROPS	165.0	7,205.00	2,015.00	505.00	76.00	18.45
D6H LGP SERIES II	Straight	EROPS	165.0	7,110.00	1,990.00	500.00	75.00	18.50
D6H LGP SERIES II	Straight	ROPS	165.0	6,810.00	1,905.00	475.00	71.00	18.05
D7H DS LGP SERIES II	Straight	EROPS	215.0	11,210.00	3,140.00	785.00	120.00	25.80
D7H DS LGP SERIES II	Straight	ROPS	215.0	10,825.00	3,030.00	760.00	115.00	25.25
D7H LGP SERIES II	Straight	EROPS	215.0	11,030.00	3,090.00	775.00	115.00	25.35
D7H LGP SERIES II	Straight	ROPS	215.0	10,645.00	2,980.00	745.00	110.00	24.75
DEERE								
750B LGP (1995)	Straight	EROPS	120.0	5,480.00	1,535.00	385.00	58.00	14.30
750B LGP (1995)	Straight	ROPS	120.0	5,235.00	1,465.00	365.00	55.00	13.95
750C LGP	Straight	EROPS	140.0	5,765.00	1,615.00	405.00	61.00	15.55
750C LGP	Straight	ROPS	140.0	5,435.00	1,520.00	380.00	57.00	15.15
850B LGP (1995)	Straight	EROPS	165.0	6,540.00	1,830.00	460.00	69.00	18.00
850B LGP (1995)	Straight	ROPS	165.0	6,205.00	1,735.00	435.00	65.00	17.50
850C LGP	Straight	EROPS	180.0	7,160.00	2,005.00	500.00	75.00	19.00
850C LGP	Straight	ROPS	180.0	6,800.00	1,905.00	475.00	71.00	18.55
DRESSER								
TD12 LGP (1991)	Straight	EROPS	125.0	4,685.00	1,310.00	330.00	50.00	14.00
TD12 LGP (1991)	Straight	ROPS	125.0	4,415.00	1,235.00	310.00	47.00	13.65
TD12C LGP	Straight	EROPS	125.0	5,850.00	1,640.00	410.00	62.00	14.85
TD12C LGP	Straight	ROPS	125.0	5,530.00	1,550.00	390.00	59.00	14.40
TD15C LGP (1991)	Straight	ROPS	140.0	5,440.00	1,525.00	380.00	57.00	16.05
TD15E LGP	Straight	EROPS	165.0	7,570.00	2,120.00	530.00	80.00	19.30
TD15E LGP	Straight	ROPS	165.0	7,280.00	2,040.00	510.00	77.00	18.80
TD20G LGP	Straight	EROPS	225.0	11,060.00	3,095.00	775.00	115.00	26.20
TD20G LGP	Straight	ROPS	225.0	10,750.00	3,010.00	755.00	115.00	25.70

APPENDIX 9

(Davis-Bacon Wages for Tooele County)

General Decision Number UT930020

Superseded General Decision No. UT910020

State: Utah

Construction Type:
Heavy

County(ies):
TOOELE

HEAVY CONSTRUCTION PROJECTS (Including Water and Sewer Lines
Construction and Wastewater Treatment Plants)

Modification Number	Publication Date
0	02/19/1993
1	02/19/1993
2	09/10/1993
3	10/08/1993

COUNTY(ies):
TOOELE

BOIL0182A 07/01/1993

	Rates	Fringes
BOILERMAKERS	18.48	7.79

* ELEC0354A 06/01/1993

	Rates	Fringes
ELECTRICIANS	17.40	3.10+3.8%

SUUT2004A 03/23/1992

	Rates	Fringes
CARPENTERS	14.44	2.65
CEMENT MASONS	15.07	2.35
IRONWORKERS:		
Structural & Ornamental	16.65	3.46
Reinforcing	16.65	3.49
Fence Erector	16.65	3.58
LABORERS:		
General	13.82	2.65
Concrete	16.56	1.65
Concrete saw	17.45	.49
PAINTERS:		
Spray	14.05	1.62
Sandblaster	14.05	1.62
PLUMBERS	17.46	3.26
PIPEFITTERS	16.74	3.26
POWER EQUIPMENT OPERATORS:		
Asphalt screed	18.05	7.08
Backhoe	18.71	6.76
Bulldozer, all sizes	19.97	5.78
Compactor	20.47	5.39
Grader	19.88	5.74
Loader, up to 6 CY	18.45	5.82
Loader, over 6 CY	21.60	5.39
Piledriver	20.05	7.08
Roller	18.82	6.47
Steel Erector	23.09	7.08
TRUCK DRIVERS:		
Dump Trucks - Water level capacity (bottom, end and side), (Including dumpster truck, turnawagon, turnarockers and dumpcrete):		
Up to 14 CY	16.98	5.51
14 CU YDS and less than 35 CU YDS	18.27	5.48
Water, Fuel and Oil Trucks All Sizes	14.69	5.68

APPENDIX 10

(Government Perdiem Rates)

GENERAL SERVICES ADMINISTRATION

41 CFR Parts 301-4 and 302-2

[FTR Amendment 42]

RIN 3090-AF64

Federal Travel Regulation; Privately Owned Vehicle Mileage Reimbursement

AGENCY: Federal Supply Service, GSA.
ACTION: Final rule.

SUMMARY: This final rule amends the Federal Travel Regulation (FTR) to implement provisions of the Treasury, Postal Service, and General Government Appropriations Act for Fiscal Year 1995 (Pub. L. 103-329, September 30, 1994). The Act eliminates the fixed statutory ceilings on mileage reimbursement rates for advantageous use of a privately owned vehicle (POV) on official business travel, and allows the Administrator of General Services to establish the rates based on cost investigations. This amendment is intended to provide equitable reimbursement to a Federal employee for advantageous use of a POV on official business travel by increasing the mileage reimbursement rates to reflect current costs per mile of operating a POV; and by increasing the mileage reimbursement rates for use of a POV in lieu of a Government-furnished vehicle (GFV) to reflect current costs to an agency of operating a GFV.

DATES: This final rule is effective January 1, 1995, and applies to travel performed on or after January 1, 1995.

FOR FURTHER INFORMATION CONTACT: Robert A. Clauson, General Services Administration, Transportation Management Division (FBX), Washington, DC 20406, telephone 703-305-5745.

SUPPLEMENTARY INFORMATION: This final rule amends the Federal Travel Regulation (FTR) to establish increased mileage reimbursement rates for use of a privately owned vehicle (POV) while performing official business travel.

Mileage reimbursement rates for advantageous use of a POV have been constrained by statute at 25 cents per mile for a privately owned automobile (established in June 1991), 45 cents per mile for a privately owned airplane (established in October 1980), and 20 cents per mile for a privately owned motorcycle (established in October 1980) even though cost studies have indicated that higher reimbursement

rates were necessary to adequately reimburse the cost of operating a POV.

Section 634 of the Treasury, Postal Service, and General Government Appropriations Act for Fiscal Year 1995 (Pub. L. 103-329, September 30, 1994) eliminated the fixed statutory caps and allows the Administrator of General Services to establish mileage reimbursement rates based on cost investigations which the General Services Administration (GSA) is required under 5 U.S.C. 5707(b)(1) to periodically conduct and report to Congress. Under the new law, the mileage reimbursement rate for advantageous use of a privately owned automobile may not exceed the Internal Revenue Service (IRS) business standard mileage rate in any year the IRS establishes such a single rate.

GSA has reported the results of its November 1994 cost investigation to Congress and indicated that the governing regulation would be revised to increase the mileage allowance for advantageous use of a privately owned automobile from 25 cents per mile to 30 cents per mile, for use of a privately owned airplane from 45 cents per mile to 88.5 cents per mile, and for use of a privately owned motorcycle from 20 cents per mile to 24.5 cents per mile. Additionally, based on updated data reflecting current costs to an agency of operating a GFV, GSA has increased the two-tiered reimbursement rates for use of a POV instead of a GFV from 18 cents to 23.5 cents per mile and from 9.5 cents to 10.5 cents per mile.

GSA has determined that this rule is not a significant regulatory action for the purposes of Executive Order 12866 of September 30, 1993. This final rule is not required to be published in the **FEDERAL REGISTER** for notice and comment. Therefore, the Regulatory Flexibility Act does not apply.

List of Subjects in 41 CFR Part 301-4

Government employees, Travel, Travel allowances, Travel and transportation expenses

List of Subjects in 41 CFR Part 302-2

Government employees, Relocation allowances and entitlements, Transfers

For the reasons set out in the preamble, 41 CFR parts 301-4 and 302-2 are amended to read as follows:

PART 301-4—REIMBURSEMENT FOR USE OF PRIVATELY OWNED CONVEYANCES

1. The authority citation for part 301-4 continues to read as follows:

Authority: 5 U.S.C. 5701-5709; E.O. 11609, 36 FR 13747, 3 CFR, 1971-1975 Comp., p. 586.

2. Section 301-4.2 is amended by revising paragraph (a); removing paragraph (b); redesignating paragraphs (c) and (d) as paragraphs (b) and (c) respectively; by removing the number "25" every place it appears in new paragraph (c), and adding in its place the number "30"; and by removing the phrase "paragraphs (d)(1) and (2)" in new paragraph (c)(3), and adding in its place the phrase "paragraphs (c) (1) and (2)", to read as follows:

§ 301-4.2 When use of a privately owned conveyance is advantageous to the Government.

(a) *Authorized mileage reimbursement rates.* When the use of a privately owned conveyance is authorized or approved as advantageous to the Government for the performance of official travel, either within or outside the United States, as provided in § 301-2.2(d)(3) of this chapter, reimbursement to the traveler shall be at the mileage rates prescribed in this paragraph.

(1) For use of a privately owned automobile: 30 cents per mile.

(2) For use of a privately owned airplane: 88.5 cents per mile.

(3) For use of a privately owned motorcycle: 24.5 cents per mile.

§ 301-4.4 [Amended]

3. Section 301-4.4 is amended by removing the number "18.0" wherever it appears in the section, and adding in its place the number "23.5"; and by removing the number "9.5" where it appears in paragraph (c), and adding in its place the number "10.5".

PART 302-2—ALLOWANCES FOR SUBSISTENCE AND TRANSPORTATION

4. The authority citation for part 302-2 continues to read as follows:

Authority: 5 U.S.C. 5721-5734; 20 U.S.C. 905(a); E.O. 11609, 36 FR 13747, 3 CFR, 1971-1975 Comp., p. 586.

§ 302-2.3 [Amended]

5. Section 302-2.3 is amended by removing the reference "§ 301-4.2(a)(2)" where it appears in the introductory text of paragraph (c), and by adding in its place the reference "§ 301-4.2(a)(1)".

Dated: December 15, 1994.

Julia M. Stasch,
Acting Administrator of General Services.
[FR Doc. 94-31790 Filed 12-23-94; 8:45 am]
BILLING CODE 6820-24-F

**GENERAL SERVICES
ADMINISTRATION****41 CFR Chapter 301****[FTR Amendment 41]****RIN 3090-AF55****Federal Travel Regulation; Maximum
Per Diem Rates****AGENCY:** Federal Supply Service, GSA.**ACTION:** Final rule.

SUMMARY: An analysis of lodging and meal cost survey data reveals that the listing of maximum per diem rates for locations within the continental United States (CONUS) should be updated to provide for the reimbursement of Federal employees' expenses covered by

per diem. This final rule, among other things, increases/decreases the maximum lodging and meals and incidental expenses amounts in certain existing per diem localities, adds new per diem localities, and modifies the defined per diem area for Flagstaff and Grand Canyon, in the state of Arizona and Virginia Beach and Williamsburg, in the state of Virginia.

DATES: This final rule is effective on January 1, 1995, and applies for travel (including travel incident to a change of official station) performed on or after January 1, 1995.

FOR FURTHER INFORMATION CONTACT: Donna Cooke or Karen Kinsella, Transportation Management Division (FBX), Washington, DC 20406, telephone 703-305-5745.

SUPPLEMENTARY INFORMATION: The General Services Administration (GSA) has determined that this rule is not a significant regulatory action for the purposes of Executive Order 12866 of September 30, 1993. This final rule is not required to be published in the Federal Register for notice and comment. Therefore, the Regulatory Flexibility Act does not apply.

For the reasons set out in the preamble, under 5 U.S.C. 5701-5709, title 41, chapter 301 of the Code of Federal Regulations is amended by revising Appendix A to chapter 301 to read as follows:

**CHAPTER 301—TRAVEL
ALLOWANCES****APPENDIX A TO CHAPTER 301—PRESCRIBED MAXIMUM PER DIEM RATES FOR CONUS**

The maximum rates listed below are prescribed under §301-7.3(a) of this chapter for reimbursement of per diem expenses incurred during official travel within CONUS (the continental United States). The amount shown in column (a) is the maximum that will be reimbursed for lodging expenses including applicable taxes. The M&IE rate shown in column (b) is a fixed amount allowed for meals and incidental expenses covered by per diem. The per diem payable calculated in accordance with part 301-7 of this chapter for lodging expenses plus the M&IE rate may not exceed the maximum per diem rate shown in column (c). Seasonal rates apply during the periods indicated.

Key city ¹	Per diem locality County and/or other defined location ^{2,3}	Maximum lodging amount (a)	M&IE rate (b)	Maximum per diem rate ⁴ (c)
CONUS, Standard rate	(Applies to all locations within CONUS not specifically listed below or encompassed by the boundary definition of a listed point. However, the standard CONUS rate applies to all locations within CONUS, including those defined below, for certain relocation subsistence allowances. See parts 302-2, 302-4, and 302-5 of this subtitle.)	\$40	\$26	\$
ALABAMA				
Anniston	Calhoun	42	26	
Birmingham	Jefferson	52	30	
Dothan	Houston	43	26	
Gulf Shores	Baldwin			
(April 1-September 30)		106	30	
(October 1-March 31)		52	30	
Huntsville	Madison	58	34	
Mobile	Mobile	55	34	
Montgomery	Montgomery	51	26	
Sheffield	Colbert	56	30	
ARIZONA				
Casa Grande	Pinal	50	30	
Chinle	Apache			
(April 1-October 31)		93	30	
(November 1-March 31)		54	30	
Flagstaff	All points in Coconino County not covered under Grand Canyon per diem area.			
(April 1-October 31)		78	30	
(November 1-March 31)		58	30	
Grand Canyon	All points in the Grand Canyon National Park and Kaibab National Forest within Coconino County.	104	30	
Kayenta	Navajo			
(May 1-October 14)		80	26	
(October 15-April 30)		55	26	
Phoenix/Scottsdale	Maricopa			
(December 1-April 30)		87	34	
(May 1-November 30)		61	34	
Prescott	Yavapai	50	30	
Sierra Vista	Cochise	46	30	
Tucson	Pima County; Davis-Monthan AFB.			
(November 1-April 30)		62	30	
(May 1-October 31)		54	30	

APPENDIX 11

(Means Estimating Guide for OH&P)

010 | Overhead & Miscellaneous Data

010 000 | Overhead

	CREW	DAILY OUTPUT	LABOR-HOURS	UNIT	1996 BARE COSTS				TOTAL INCL O&P
					MAT.	LABOR	EQUIP.	TOTAL	
040 1700				Payroll		9.15%			04
1800						44.76%			
2000						2.30%			
2100						20.20%			
2200						172.70%			
042 0010									04
0020									
0100				Project					
0200								2%	
0500								5%	
0600								2%	
0700								10%	
0800								1%	
1100								10%	
1200								5%	
048 0010								12%	048
0020									
0030				% Vol.				20%	
0040								30%	
0050								13.60%	
0060								17%	
0070								22%	
0080								16%	
0090								19%	
0100								14%	
0110								16%	
0120								8%	
0130								10%	
0140								6.80%	
0150								5.60%	
0200								5.10%	
0250								3.90%	
0300									
052 0010									052
0100									
0200				%				10%	
0250								15%	
0400								5%	
0450								7.50%	
0600								15%	
0650								10%	
1150									
062 0010									062
0020				%				25%	
0100									
0110				%				5%	
0150								10%	
0200								15%	
0300								30%	
0350								25%	
0400								20%	
0450								15%	
064 0010									064
0020				Costs	100%				

APPENDIX 12

(Means Estimating Guide for Contingencies)

010 | Overhead and Miscellaneous Data

1 GENERAL REQUIREMENTS

010 000 Overhead				CREW	DAILY OUTPUT	MAN-HOURS	UNIT	1995 BARE COSTS				TOTAL	INCL O&P	
								MAT.	LABOR	EQUIP.	TOTAL			
004	0011	ARCHITECTURAL FEES	RD10-010											00
	0020	For new construction												
	0060	Minimum					Project						4.90%	
	0090	Maximum											16%	
	0100	For alteration work, to \$500,000, add to fee											50%	
	0150	Over \$500,000, add to fee											25%	
016	0011	CONSTRUCTION MANAGEMENT FEES					Project						10%	01
	0060	For work to \$10,000											9%	
	0070	To \$25,000											6%	
	0090	To \$100,000											5%	
	0100	To \$500,000											4%	
	0110	To \$1,000,000											2.50%	
	0300	\$5,000,000 job, minimum											4%	
	0350	Maximum												
018	0011	CONSTRUCTION COMPLETION TIME Requirements	RD10-020											01
020	0010	CONTINGENCIES Allowance to add at conceptual stage					Project						20%	01
	0050	Schematic stage											15%	
	0100	Preliminary working drawing stage											10%	
	0150	Final working drawing stage											2%	
022	0010	CONTRACTOR EQUIPMENT See division 016												0
028	0010	ENGINEERING FEES Educational planning consultant, minimum	RD10-030				Contract						4.10%	0
	0100	Maximum											10.10%	
	0200	Electrical, minimum											4.10%	
	0300	Maximum											10.10%	
	0400	Elevator & conveying systems, minimum											2.50%	
	0500	Maximum											5%	
	0600	Food service & kitchen equipment, minimum											8%	
	0700	Maximum											12%	
	0800	Landscaping & site development, minimum											2.50%	
	0900	Maximum											6%	
	1000	Mechanical (plumbing & HVAC), minimum											4.10%	
	1100	Maximum											10.10%	
	1200	Structural, minimum					Project						1%	
	1300	Maximum											2.50%	
032	0011	FACTORS, Cost adjustments to repair & remodeling projects	RD11-010											
	0100	Add to construction costs for particular job requirements												
	0500	Cut & patch to match existing construction, add, minimum					Costs	2%	3%					
	0550	Maximum						5%	9%					
	0800	Dust protection, add, minimum						1%	2%					
	0850	Maximum						4%	11%					
	1100	Equipment usage curtailment, add, minimum						1%	1%					
	1150	Maximum						3%	10%					
	1400	Material handling & storage limitation, add, minimum						1%	1%					
	1450	Maximum						6%	7%					
	1700	Protection of existing work, add, minimum						2%	2%					
	1750	Maximum						6%	7%					
	2000	Shift work requirements, add, minimum							5%					
	2050	Maximum							30%					
	2300	Temporary shoring and bracing, add, minimum						2%	5%					
	2350	Maximum						5%	12%					
034	0010	FIELD OFFICE EXPENSE					Month	147				147	162	
	0100	Office equipment rental, average						263				263	289	
	0120	Office supplies, average												
	0125	Office trailer rental, see division 015-904												

See the Reference Section for reference number information, Crew Listings and City Cost Ind

United States Department of the Interior
BUREAU OF LAND MANAGEMENT
WASHINGTON, D.C. 20240

IN REPLY REFER TO:
1681/1323 (880)

December 10, 1992

EMS Transmission 12/14/92
Instruction Memorandum No. 93-84
Expires 9/30/94

To: All WO and Field Officials

From: Director

Subject: Recovery of Indirect Administrative Costs

This instruction memorandum explains Bureau of Land Management (BLM) policy for the recovery of indirect costs associated with work done for non-BLM entities through reimbursements, service charges, road maintenance fee, and contributed funds accounts.

Application of the Indirect Administrative Cost Rate

The BLM is obligated by law and Governmentwide policy to collect indirect administrative costs when performing work for other entities, whether Federal, Non-Federal, or private. The indirect administrative cost rate generally applicable to all work is 18 percent of the total project cost, unless specifically exempted or reduced by other sections of this directive. All reimbursable projects in the Construction and Access (29XX), Management of Lands and Resources (49XX), and Oregon & California Grant Lands (69XX) appropriations, Service Charges (5XXX), and non-exempted Contributed Fund (71XX) projects are subject to the 18 percent indirect administrative cost rate. The indirect administrative rate for Road Maintenance Fee work in subactivities 9110 and 9120 remains at 5 percent of collections.

Also, reimbursable projects conducted for other Federal agencies with which the BLM has a National-level Memorandum of Understanding (MOU) which dictates a different administrative rate, such as the National MOU with the Forest Service which establishes a mutual indirect cost rate of 20 percent, and those projects covered by other MOUs with mutually adopted variable rates, are charged indirect administrative costs at the rate established by the appropriate MOU.

The indirect cost amounts collected by BLM will continue to be applied to a Bureauwide credit account and allocated on a Bureauwide basis as part of the 4830 (General Administration) cost targets to provide for the cost of supporting reimbursable, cost recoverable, and contributed fund projects.

① Pro. Make 11/14 all BLM
② Kuller RD-SD 12-15-92

Exceptions to the Indirect Administrative Cost Rate for Contributed Fund projects

Projects in the Contributions Account (71XX) that the cognizant BLM State Director determines are of primary benefit to the general public and further Bureau management objectives may be exempted from application of any indirect administrative cost charges or may be given reduced indirect administrative cost rates. The State Director is responsible for making the determination of exemption and calculating the new rate. If two or more States are involved in the contributed funds project, the cognizant State Directors are responsible for assuring that similar rates are applied. For 71XX projects determined to be exempt or having a reduced rate, the cognizant State Director is responsible for submitting the waiver form (BLM Form 1681-3a) to the BLM Service Center Division of Finance.

The BLM California State Director is authorized to set the indirect administrative rate for the California Off-Highway Vehicle (OHV) contribution (7123) projects. The rates should reflect the actual support required for each project.

Indirect Costs Associated with Fire Protection Reimbursements

Fire protection and presuppression reimbursable work performed under subactivity 1590 (Fire Reimbursements) for National Agreement Cooperating agencies and presuppression work for State agencies covered by formal agreements are exempt from the indirect administrative cost rate. This category of exempt activities includes: dispatch and logistical support services; prevention and detection services; crews and personnel, telecommunication support services; smokejumper operations, fire suppression training and support and training materials necessary for fire preparedness. Participating agencies which provide similar and like services in presuppression activities are the following: USDA-Forest Service, NPS, BIA, and FWS, and State Forestry agencies engaged in wildfire suppression. The indirect administrative charge also does not apply to 1590 interagency core funding for BIFC under Interagency Agreement No. 18.

Functions such as management type work, fire planning, indirect office space charges and prescribed fire activities are *not* exempt from the indirect administrative charges. All project costs (i.e., personnel time, leave surcharge, travel, materials, equipment, facilities, and utility charges) for subactivity 1590 fire presuppression work, will continue to be recovered via the reimbursable process, and recorded on BLM Form 1681-3, Reimbursable Work Project Authorization, a copy of which should be sent to the BLM Service Center Division of Finance (SC-615).

Review of the applicability of the full rate to certain reimbursable work

The application of the full indirect administrative cost rate to certain types of reimbursable projects, such as tying other Federal agencies into existing third-party contracts, has been identified in some cases as not equitable. The concern is that a large contract or a pass-thru project does not necessarily cost the BLM as much in administrative support as projects with

a large proportion of direct labor intensive work, yet the same rate is charged. Based on requests from the cognizant State Director, the Headquarters Office will consider applying lower rates, such as 10 percent, for such projects. Such requests are to be sent to the Headquarters Office Division of Budget (WO-880) for review and approval.

Waivers and Exceptions for other special projects

There may be some rare instances where a reduction or waiver of the indirect administrative cost rate for a certain Reimbursable (49XX, 29XX, 69XX) project may facilitate the BLM's work. If the cognizant State Director believes that there is a project warranting such an exception, a waiver/reduction of the indirect administrative cost rate can be requested from the Headquarters Office Division of Budget (WO-880) by the State Director in writing. Requests will be reviewed and, if justified, approved for a waiver. However, the BLM incurs administrative costs with all projects. These indirect support costs must be funded either through the application of the indirect rate or by a subsidy from appropriated General Administration (4830) or other program dollars.

In no case will waivers or reductions in the indirect administrative cost rate for cost recoverable projects under the Service Charges, Deposits and Forfeitures account (5XXX) for otherwise non-exempt programs be considered. Since these projects are being accomplished for the benefit of non-governmental agencies or private entities, the BLM must recover the full indirect administrative cost rate under the law.

Any questions regarding this instruction memorandum may be referred to Harold Grayson, Division of Budget (WO-880), on (202) 208-4168.

Signed	Authenticated
Roger Hildebeidel	Georgette A. Fogle
Acting Assistant Director, Management Services	Directives (WO 855)

NOTE - FOR YOUR INFORMATION

TO: UT950 Attn: Linda MacDonald

FROM: SC610 Kay Benson

SUBJECT: General Administrative Expense (Indirect Cost)

The indirect cost moved from Programs 5310, 5320, 9110 and 9120 for August 1995, to bring your availability back into line will reflect in your September reports. The following will tell you how much indirect (18%) for Programs 5310 and 5320, and (5%) for Programs 9110 and 9120 was taken on collections for August:

5320	UT040	\$	148.16
	UT050	\$	1.08
	UT060	\$	97.78
	UT080	\$	44.71

9120	UT020	\$	1.50
	UT040	\$	41.84
	UT050	\$	8.60
	UT060	\$	27.13
	UT080	\$	26.09